A STUDY OF SEXUAL DYSFUNCTION AMONG MALE ALCOHOL DEPENDENT PATIENTS

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CERTIFICATE

This is to certify that the dissertation titled "**A Study of Sexual Dysfunction Among Male Alcohol Dependent Patients**" is the bonafide work of **Dr.A.Godson,** in part fulfillment of the requirements for M.D. Branch – XVIII (Psychiatry) examination of The Tamilnadu Dr. M.G.R Medical University, to be held in **APRIL 2013**. The Period of study was from May 2011 to August 2012.

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DECLARATION

I, **Dr.A.Godson,** solemnly declare that dissertation titled "**A study of sexual dysfunction among male alcohol dependent patients**" is a bonafide work done by me at Department of psychiatry, Government Rajaji Hospital, Madurai Medical College, Madurai during the period from May 2011 to August 2012 under the guidance and supervision of Prof.**Dr.C.P.Rabindranath, M.D.,D.P.M.,** Head of the Department & Professor of Psychiatry, Government Rajaji Hospital, Madurai Medical College, Madurai.

This dissertation is submitted to The Tamilnadu Dr. M.G.R Medical University, towards part fulfilment for M.D. Branch – XVIII (Psychiatry), part- III examination**.**

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CONTENTS

INTRODUCTION

Drinking alcohol is a socially accepted one and thought to provide relaxation and pleasure. Some people consume alcohol without experiencing any harmful effects. The common reasons for alcohol consumption are pleasure, relaxation, mood change, to increase creativity, intoxication, addiction, forgetting sorrows or for thirst-quenching. But, a significant proportion of people experience physical, psychological and social adverse effects of alcohol. It is clear, however, that as the average daily consumption of alcohol consumed and frequency of intoxication increase, so does the incidence of physical and psychosocial problems. The medical complications due to alcohol are a consequence of its toxic and ability to cause dependence.

Alcohol dependence syndrome is one of the most common and most researched illness among psychiatric disorders. In India epidemiological studies have shown a prevalence rate of 16-50% for alcoholism. Excessive and chronic consumption of alcohol increases the risk of psychiatric disorders like depression, anxiety, psychosis, dependence syndrome, memory disturbance and an increased risk of suicide. Both acute and chronic heavy consumption can contribute to a

wide range of social problems including domestic violence and marital problems, child abuse and neglect, absenteeism and job loss.

The relationship between alcohol consumption and sexual dysfunction is complex. Most persons prefer alcohol before sexual activity due to its disinhibiting property and alcohol is believed to be a powerful sexual facilitator and aphrodisiac. Alcohol has been considered as a risk factor for sexual dysfunctions in several textbooks, review articles or in clinical teaching. Possible mechanisms that leads to sexual dysfunction in alcoholics includes: altered metabolism of testosterone, hepatic dysfunction ,alteration of HPG axis function, direct depressant effect of alcohol, neurotoxic effect, interpersonal factors due to alcohol consumption

Chronic alcohol abuse is a well known factor, which induce sexual dysfunction, which leads to marked distress and interpersonal problems between partners. This, in turn worsens the alcohol abuse as a vicious cycle. Chronic alcohol consumption has systemic effects that can lead to changes in sexual function. These changes persist even after alcohol has been completely removed from system. In some cases sexual dysfunction may be due to reversible vagal neuropathy, and the dysfunction may be reversed with abstinence.

DSM-IV has a separate entity as substance induced sexual dysfunction. It specified that the sexual dysfunction should develop during or within a month of withdrawal of alcohol, which should be enough to produce significant distress and interpersonal problems. The substance of interest should be etiologically related to the sexual disturbance. It also mentioned that the sexual dysfunction is not better accounted for any other substances or medication or psychiatric, medical illness. The specification includes with impaired desire, impaired arousal, impaired orgasm, and with sexual pain. It also mentioned the following sexual dysfunctions in men (302) which are the main concern of our study which includes:

Hypoactive sexual desire disorder

Male erectile disorder

Male orgasmic disorder

Premature ejaculation

Sexual aversion disorder

RELEVANCE OF THE STUDY

It is very obvious that in de-addiction clinic and general practice, alcohol dependent persons were thoroughly investigated for any physical and psychiatric complications. But the sexual dysfunction is the one which is under-diagnosed and underreported. Several studies have been focused on the various physical and psychiatric complications of alcohol consumption till date. But only few studies have compared the direct effect of alcohol on sexual functioning. Among these studies erectile dysfunction was the main concern and other sexual dysfunctions was not taken in account. So in this study we tried to focus the light on various domains of sexual dysfunctions in alcohol dependent patients and compared it with non alcoholics. By identifying and reporting this sexual dysfunction awareness can be created among clinicians to focus on these problems to reduce the morbidity and enhance the quality of life.

REVIEW OF LITERATURE

PHARMACOLOGY OF ALCOHOL

Ethanol or ethyl alcohol is the common form of alcohol. A single drink means approximately 12 grams of ethanol which was provided by consumption of 12 ounces of beer, 4 ounces of non fortified wine and 1.5 ounce of whisky or gin. A single drink is having the potential to increase the blood alcohol in average man by 15-20 mg/dl[1].

PHARMACOKINETICS[1,2]

After oral consumption alcohol was well absorbed in small intestine, little absorbed in stomach (10%). The peak blood level was achieved in 45-60 minutes which was enhanced by empty stomach. It is found in all physiological fluids of body and crosses the placenta. Ethanol was mainly metabolised by alcohol dehydrogenase with zero order kinetics in to acetaldehyde which further metabolised in to acetic acid by aldehyde dehydrogenase. Around 90% of ethanol is metabolised in liver by oxidation and 10% excreted by kidney and lungs in unchanged form.

PHARMACODYNAMICS[1,2]

Alcohol act by interfering with the fluidity of membrane lipids thus leads to change in GABA mediated chloride ion channel. Alcohol is

a central nervous system depressant resulting in descending order of depression from cortex to spinal cord. Alcohol found to be activating the ion channels of nicotinic acetyl choline, 5 HT_3, and $GABA_A$ receptors, but inhibit the glutamate and voltage gated calcium channels. Removal of inhibitory effect of cortex leads to hyperactivity and inhibition of anti diuretic hormone in posterior pituitary leads to diuresis. Slowness of motor and thinking performance occurred at 20-30 mg/dl of blood alcohol concentration (BAC). Inco-ordination and judgmental problems appear at 80-200mg/dl of BAC, nystagmus appear at 200-300mg/dl BAC, and death occur at more than 400 mg/dl of BAC.

EPIDEMIOLOGY AND RISK FACTORS OF ALCOHOL DEPENDENCE

The concept of alcohol dependence syndrome was introduced by Edward and Gross on 1976 and it was introduced first in DSM III[3]. As per DSM IV TR, the current rate of alcohol dependence is 5%[1]. The National Household Survey on Drug Abuse in USA (NHSDA-1996) suggested that the prevalence at any point of time is more in men than women. The annual prevalence for men is 70% ,for women is 60% and lifetime prevalence is 82.6% and 78.8% for men and women respectively[2].The Epidemiological Catchment Area (ECA) program is the

only epidemiological study which prospectively studied the prevalence and incidence of drug abuse[2]. This study showed life time prevalence of alcohol dependence is 7.9% and for abuse is 5.6%.

In European population around 8 out of 10 people was reported to be consuming alcohol in their life time. Similar reports also obtained from American population. In United States one in seven persons became dependent after starting to drink alcohol in their life time. In United States alcohol related problems has become the third most common next to heart disease and cancer. Although Jews have highest prevalence of alcohol the dependence pattern is low[1].

Enrique echeburu et al[4] (2007) compared the effect of personality disorder in influencing alcohol consumption and concluded that among alcohol dependent persons around 45 % of them had at least one personality disorder comparing with non addictive psychiatric population (22%) and normal population (7%). Kaisla joutsenniemi et al[5] (2007) concluded that heavy drinking and dependence pattern was seen in those who are living alone and cohabiting. Unemployment, financial constrains, poor social support and women living in urban areas are the contributing factors for high risk of alcohol consumption.

Wei-yen lim et al[6] (2007) found that the prevalence of alcohol consumption in Singapore was increased during the past 12 years, from 4.5 to 7%. This trend was predominantly seen in younger age group and surprisingly in women, especially around the period of beginning of this century. Among the study population the Indian ethnic group showed more binge drink pattern than the native Malay people.

Approximately 80% of people taking alcohol developed depressive symptoms during their life time and around 35% of male and half of female persons developed longer period of depression. Alcohol is a known risk factor for suicide attempt since more than 20% of them attempted suicide at least once in their life and around 15% die in their attempt. In most of alcoholics depressive symptoms will be vanished within weeks to months of abstinence[3].

Clinical studies showed around 20 – 70% of alcoholics suffer from anxiety disorders. Alcohol is responsible for around 70-80% of death due to cirrhosis which is more pronounced in women[3]. Jean h. Kim et al[7] (2008) compared binge drinking pattern in Chinese population found out that, although the prevalence was increasing it was still less normative than the developed countries. High prevalence seen in middle aged men with tertiary education working in service industries.

PATHOPYHSIOLOGY OF ALCOHOL DEPENDENCE

Paula Hoffman[8] (1996) consolidated the mechanism of various components of alcohol dependence. He concluded that alcohol induced changes in the GABA receptor functions probably play a role in tolerance; upregulated NMDA glutamate receptors could be a factor in withdrawal symptoms and the same mechanism play a role in craving by decreasing the dopamine level in mesolimbic reward pathway.

Basavarajappa et al[9] (2005) described the role of endocannabinoids, particularly arachidonylethanolamide (AEA), 2-arachidonylglycerol (2-AG) in alcohol tolerance and CB1 receptors in voluntary alcohol consumption. He concluded that chronic alcohol consumption leads to down regulation of CB1 receptors due to accumulation of the above said endocannabinoids which is the mechanism of tolerance. This findings support the use of CB1 receptor antagonist in treatment of alcohol dependence.

Alcohol mimics the natural neurotransmitter like GABA and release neurotransmitter like dopamine. It also has antagonistic effects on glutamate. Recent linkage and association studies found a strong linkage to chromosome 4 with addiction vulnerability. Although several candidate genes and markers for alcoholism had been proposed, the

strongest candidate gene to date is $GABA_A$ receptor α 2 subunit on chromosome 4[3].

As a addition to Hoffman's finding Roberta J. Ward[10] (2009) found out that in chronic alcoholism increase release of glutamate occurs only during the withdrawal periods, which did not affect the brain due to neuro-adaptational changes occurred in the neurotransmitter system and cellular level. But in binge drinking excessive glutamate was released during consumption itself that leads to immediate and direct toxic effect on brain. Thomas Hillemacher[11] (2011) tried to identify the role of Appetite regulating system (leptin, adiponectin, resistin ,ghrelin), transcription factors in endocrinological mechanism of alcoholism and epigenetic mechanisms in alcohol dependence ,found that the findings are still inconclusive.

ALCOHOL DEPENDENCE: INDIAN SCENARIO

The earliest information on epidemiology of substance abuse in India has been available from the surveys carried out in 1960s and early 1970s for mental illness[2]. Channabasavana[2] (1989) consolidated the studies in India which revealed the prevalence of alcohol abuse in general population varied from 2.9-82.5% and among students 5.2-58%. During

the same period studies showed prevalence of alcohol abuse in life time among medical professionals was 8.5-66.7%.

In India, the cultural tradition and permissiveness of alcohol use in Punjab, Goa and Bangalore has been seen to be associated with higher rates of alcohol use disorders in epidemiological studies[2]. Around 7 % prevalence of alcohol and other drug dependence per 1000 population with rural predominance was found in a meta-analysis of 13 epidemiological studies in psychiatry conducted by Reddy MV et al[12] (1998).

In his study B.S.Chavan et al[13] (2007) found out 7% prevalence of alcohol and other drug dependence among rural and slum dwellers of Chandigarh. It reflects almost the prevalence of alcohol dependence, as among all substances alcohol is the most common substance abused, exceeding 92%. He concluded that urban slum abusers start at earlier age than rural population and health related, family problems are the most common substance related problem in that population. Pratima murthy et al[14] (2010) analysed the published articles in Indian journal of Psychiatry and various other sources found a regional difference in prevalence of alcohol addiction varied from 3 to 34 per 1000 population based on various studies conducted in India.

PHYSIOLOGY OF MALE SEXUAL FUNCTIONING[3]

Masters and Johnson formulated a most successful sexual response model. After a11 years of laboratory study with volunteers they proposed a four phase human sexual response cycle. The first phase is excitation phase characterized by raising sexual tension aroused by psychological and physical stimuli, second phase of plateau with intensification of sexual tension. The third phase called as orgasmic phase characterized by involuntary pleasurable climax and the final stage of resolution with dissipation of sexual tension. The phases of sexual response in males include:

Excitation

Psychological or physical stimuli through any of the five senses lead to sexual excitation. This excitation is manifested in brain by activation of specific regions in brain.

Erection

Defined as the conversion of flaccid urinary penis in to rigid sexual penis. On sexual arousal the adrenergic mediated sympathetic tone of smooth muscle in corpora cavernosum reduced and leads release of NO and nitrergic neurotransmitters. This in turn produce cGMP thus relaxes the smooth muscle to increase the blood flow. The corpora spongiosum protect the urethra from closure during engorgement, but not involved in

maintaining rigidity. The venous out flow is reduced passively by stretching of tunica albugenia.

Emission

Neutrally mediated smooth muscle contraction in testis, epididymis and seminal vesicle leads to movement of genital fluids from various source in to the prostatic urethra. As a consequence men experience the sense of ejaculatory inevitability during which voluntary control is impossible. Finally the contraction of ducts moves the semen in to penile urethra.

Ejaculation

Soon after the phase of emission the contraction of bulbocavernous muscle happened at about one per 0.8 seconds which squeeze the urethra to force out the ejaculate.

Male orgasm

Kinsey et al proposed that the orgasm and ejaculate are separate events with separate mechanisms. Orgasm is the ecstatic pleasure experienced just before the contraction occur and is then associated with each subsequent contraction, followed by slowly decreasing in intensity. Males usually not able to attain another erection until some time has passed, called as post ejaculatory refractory period.

TYPES OF MALE SEXUAL DYSFUNCTIONS[1]

Hypoactive sexual desire disorder is characterised by absence or deficiency of sexual fantasies and desire for sexual activity. Male erectile dysfunction is characterized by persistent and recurrent partial or complete failure to maintain or attain erection to an extend to perform sexual act. In male orgasmic disorder, persistent and recurrent delay or absent of orgasm following a normal excitement cycle of sexual activity occurs. Ejaculation that occurs with minimal stimulation before or shortly after penetration of penis in to vagina and before the person wishes it called as premature ejaculation.

EPIDEMIOLOGY AND RISK FACTORS FOR SEXUAL DYSFUNCTION

The first ever large sex survey by Alfred Kinsey[15] among thousands of men and women during the period of 1948 regarding the sexual orientation and masturbation was the beginning for study of human sexuality .The text book on treatment of human sexual inadequacy by Masters and Johnson during the period of 1970 formed the basis of two large methods of treatment for sexual dysfunctions known as psychological and medical interventions[3].

Despite these earlier studies conducted several decades ago, the full blown structured studies regarding sexual dysfunctions has been conducted for the past two decades only. After the introduction of Viagra on early 1990's the male sexual dysfunction became as a medicalized one. Laumann et al[16] published a paper on 1999 who identified 43% of women and 31% of men had sexual dysfunctions in United States. He described it as a largely uninvestigated yet significant public health problem.

Dunn et al[17] (1999) found a 26% prevalence of erectile dysfunction and 14% of premature ejaculation. While most of the studies concerned about the sexual dysfunction in the recent past month Mercer et al[18] (2003) found at least 6 months prevalence. Based on his study the prevalence rate of low sexual desire, erectile problems, premature ejaculation, delayed ejaculation are 1.8%, 0.8%, 2.9%, 0.7% respectively.

Epidemiology of male erectile dysfunction study[19] (2001) showed prevalence of ED was 12%, and stressed that ED is not an inevitable consequence of aging as around 70% of men between the age group of 60-70 did not have ED. In two general population based Japan studies revealed prevalence of ED increasing with age range from 16% in 40-45 age group to 70% in 66-70 age group in one study[20] and 8.6% in 40-49 age group to 64.3% in above 70 group in another one[21].

In his review article on epidemiology of erectile dysfunction Kubin et al[22] (2003) concluded that the prevalence of mild erectile dysfunction varies from 15-49% in European studies, 17% in American studies. The prevalence of moderate to severe erectile dysfunction varies from 5-19% in European studies, 10-35 in American studies**,** 23% in Australian study. The contributing factors for increased prevalence in elderly people are depression, cardiovascular and neurological factors, diabetes and drugs.

F Hedon[23] (2003) discussed the role of anxiety in producing and perpetuating the erectile dysfunction. He proposed that the stressful life events leads to anxiety which further aggravate the ED. The life stressors may include job related (stress, unemployed), important adverse life events, health related (surgery, illness), couple related factors (divorce, separation, conflicts), fear of death and feeling of ill health in advancing age. Overall it reduces the frequency of sexual encounters between partners.

In a retrospective study among Taiwan adult males Chen et al[24] (2004) found around 18% prevalence of erectile dysfunction which is positively correlated with ageing and significantly associated with chronic physical illness among which hypertension and hyperlipidemia

was outnumbered. He identified erectile dysfunction candidates has a negative impact on sexual activity and intercourse satisfaction.

Enzlin E et al[25] (2004) studied the sexual functioning of 40-69 years old male and found that the as the age is advancing the sexual activity, sexual desire, erectile functioning, and intercourse satisfaction decreasing significantly. But the orgasmic functioning, satisfaction with partner and overall sexual life did not showed any age related significant decline. The sexual desire declined from the 59% in the age group of 40-49 to 33% in 60-69 age group. Around 95% reported to ejaculate most of the time and 97% had the feeling of orgasm most of the times. The intercourse satisfaction varied from 97% in younger to 86% in older group, and overall satisfaction varied from 87% to 80% as above age groups.

Ageing is a well known independent risk factor for erectile dysfunction. G Corona et al (2004) tried to correlate ED with age related pathogenetic factors and found out that in older age group relational factors play a major role and intrapsychic factors played important role in younger age group. The organic factors contributed to both groups and relatively more in aged. The serum testosterone level was positively associated with loss of libido but not with erectile dysfunction.

Corona et al[26](2004) correlated the psycho-biological aspects between ED and Hypoactive sexual desire, found that the prevalence of low sexual desire was around 40% among patients with ED who also had significant lower level of testosterone. There was no significant association between advancing age and sexual desire. But according to Kandeel the prevalence of low sexual desire in general male population was 15%.

In a study of patients diagnosed as erectile dysfunction Al el-sakka[27] (2004) found around 50% of them had severe ED and most of them (78.6%) belongs to above 50 years of age. This indicates the prevalence of ED and severity of ED had a positive association with aging. Married people contributed a majority (88%) of study population with ED. He also found that 80% of ED is of organic in origin and 20% is of psychological origin. Chris G. McMahon et al[28] (2004) divided etiological factors for premature ejaculation in to psychogenic and biological. The psychological factors includes performance anxiety, early sexual experience, less frequent of sexual intercourse ,poor ejaculatory control techniques and the biological factors includes penile hypersensitivity, hyper-excitable ejaculatory reflex, hyperarousability, endocrinopathies , genetic predisposition, 5-HT receptor dysfunction.

Naomi et al[29] (2005) found a high odds ratio for erectile dysfunction in younger aged smokers compared with higher age groups. Compared with never smokers the current and past smokers had significant erectile dysfunction which also showed dose related response. Natali et al[30] (2005) found that around 54% in his study population were belongs to current smoker, among them 11.6% are heavy smokers. The prevalence of erectile dysfunction was 41.9% among smokers and only 4% in heavy smokers.

In a web based survey among Turkish men E Oksuz et al[31] (2005) found the prevalence of sexual dysfunction as follows: both erectile dysfunction and sexual dissatisfaction being the most common (each 59.7%), ejaculatory disturbance (52.7%), low sexual desire (7.3%) and all these showed statistical significance with age. The important risk factors for sexual dysfunction are smoking and marriage.

Most of the persons with thyroid dysfunctions had some sexual dysfunctions which are reversible with normalization of thyroxine level and thyroxine hormone is thought to be related with physiology of ejaculation[32]. In hyperthyroid men, prevalence of hypoactive sexual desire, delayed ejaculation, premature ejaculation, and erectile dysfunction was 17.6, 2.9, 50, and 14.7%,respectively. But in

hypothyroid men, the prevalence of premature ejaculation was 7.1% and other dysfunctions was 64.3%

In his review journal Carson et al[33] (2006) concluded that premature ejaculation is likely to be the most common sexual dysfunction worldwide except in Middle East region where the decreased sexual desire and erectile dysfunction exceeds over it. The worldwide prevalence is around 30%. The frequent risk factors associated with premature ejaculation are erectile dysfunction, poor physical health and emotional factors .The problem in defining the PE is the major reason for wide variability in prevalence across population.

Advancing age was found as a significant risk factor for ED as the prevalence of ED in 50-65 age group was 45%, but reached more than 90% in 65-80 years age group by Cheng et al[34] (2007). The higher earning group and alcoholics had lower risk for ED but higher risk seen in never smokers than current smokers. Erectile function and Intercourse satisfaction has significant positive association with monthly income and Orgasmic function and Sexual desire are negatively associated with age. Mihalca et al[35] (2007) assessed the psychological distress in patients with erectile dysfunctions and found the persons with high psychological stress are having more prevalence of associated atherosclerosis. This

indicates ED is a potential risk factor for vascular events by causing psychological stress.

PATHOPHYSIOLOGY OF SEXUAL DYSFUNCTION

Alcohol was thought to be increasing the sexual performance by its disinhibiting property but it also impairs the performance. There was strong evidence that alcohol can increase the sexual drive. The effect on sexual performance is probably due to feeling of enhanced energy that leads to increased sexual activity. But the ultimate problem is sexual dysfunction. Men who consume alcohol used to go through two phases: first stage of prolonged erection of penis without ejaculation and second stage of gradual loss of erectile ability.

Pejman cohan et al[36] (2001) commented the events occurred in the pathophysiology of Erectile dysfunction as follows: the normal flaccid state is maintained by the sympathetic mediated contraction of vascular smooth muscle that leads to reduced blood flow. Any erotic stimuli via sensory system stimulate the hypothalamus that, in turn inhibit the sympathetic tone and release of NO from nerve endings and endothelial cells. This NO generates cGMP that further decrease the calcium uptake, finally causes smooth muscle relaxation followed by

increased blood flow. So derangement in any of these neurovascular events leads to erectile dysfunction.

J Buvat[37] (2003) explained the mechanism of erectile dysfunction in patients with hyperprolactinemia. He proposed that the hyperprolactinemia decreases the LH release in turn reduce the testosterone secretion leads to sexual dysfunctions. Around 88% of patients with hyperprolactinemia had erectile dysfunction which is commonly concomitant with reduced sexual desire. Based on endocrinological studies he conclude that some other mechanism independent of testosterone might have been involved at neurotransmitter level in causing sexual dysfunction in persons with hyperprolactinemia.

C reactive protein is an inflammatory mediator which is a risk factor for cardiovascular disease by affecting the vascular endothelium. Erectile dysfunction shared most of the risk factors of ischemic heart disease including endothelial dysfunction[38]. K Esposito et al[39] (2005) concluded that obesity and metabolic syndrome are risk factors for erectile dysfunction. He showed one third of men regained adequate sexual activity after proper weight reduction and regular exercise.

Hyperglycemia leads to impaired NO synthase activity and NO production by endothelium which contributes to impaired relaxation of vascular smooth muscle in diabetic patients[40]. The other endothelial

factors are production of oxidative free radicles, various hormones, growth factors and cytokines.

There are wide variety of drugs can cause sexual dysfunctions. The most common are thiazide diuretics and antihypertensives. Recently the antipsychotics and antidepressents are creating more dysfunctions which could be a cause for non compliance of these drugs. H_2 receptor antagonists can lead to erectile dysfunction. Apart from alcohol other substances like tobacco smoking is associated with erectile dysfunction and poor blood flow to penis. Opiate dependence is associated with erectile dysfunctions, due to hyperprolactinemia as well as direct inhibitory effect on hypothalamic-pitiutary-gonadal axis[41].

SEXUAL DYSFUNCTION: INDIAN SCENARIO

Agarwal et al[2] (1981) found that persons with erectile dysfunction and primary sexual inadequacy have low sex drive, while persons suffering from premature ejaculation and secondary sexual disorders have stronger sex drive. Bagadia et al[2] (1984) applied behavioural modification techniques like relaxation training, squeeze technique, semen's exercise to treat premature ejaculation in married

men. Among them 58% showed significant improvement. His previous studies (1972) showed 34% of premature ejaculation among males attending general hospital. The behavioural management of sexual problems found to be promising by Kuruvilla (1989) also.

Gupta et al[2] (1992) applied modified Masters and Johnson technique to 21 married male with erectile dysfunction and premature ejaculation. The recovery rate was around 75% and most of them belongs to middle aged adults. Avasthi et al[42] conducted a outcome study in 66 males with sexual dysfunctions among them erectile dysfunction was 30%, premature ejaculation 12%, the combination of two was 45%. They found that the long term outcome after seven years mainly determined by the short term outcome of sexual dysfunction.

A comparative study of 50 divorce seeking couple with 30 well adjusted couple by Gautam et al[2] (1996) found that sex related problems and sexual dysfunctions were related to divorce seeking behaviour. Verma et al[43] (1998) found a incidence of premature ejaculation 77% and 23.6% of erectile dysfunction among a consecutive male population attended sex clinic in a tertiary care setting.

A study of sexual dysfunction among young couples attending infertility clinic Kuldeep jain et al[44] (2000) found that the most common

dysfunction was premature ejaculation with incidence rate of 66%. The incidence of other sexual dysfunctions are erectile dysfunction 15%, decreased sexual desire 11%, orgasmic dysfunction 8%. Around 43% of them attributed masturbation in adolescent period as a cause for sexual dysfunction.

ALCOHOL AND SEXUAL DYSFUNCTION: EPIDEMIOLOGY AND RISK FACTORS

Lemere et al[45] (1973 suggested that many alcoholics suffered from erectile dysfunction even several years after stopping alcohol, which is possibly due to chronic alcohol induced permanent neurological damage. In a comparative study between alcohol dependents and social drinkers Whalley (1978) found significantly more sexual dysfunction among alcohol dependents (54%) than social drinkers (28%). Vijayasenan ME[46] (1981) found that the one year prevalence of sexual dysfunction in alcoholics was 71% prior to admission, among which diminished sexual desire (58%) was the most common and premature ejaculation (4%) was the least common.

Mandell et al (1983) [47] interviewed 44 chronic alcoholic men, found that more than half of them experienced erectile dysfunction during the periods of excessive consumption and 84% reported at least one

sexual dysfunction related to alcohol abuse. A comparative study of Sexual dysfunction in younger married alcoholics by Jensen SB[48] (1984) showed the prevalence of at least one sexual dysfunction was 63% ,among them most common are erectile dysfunction and libido disorders - compared with 10% in the control group

Mc Carthy[49] (1984) reported that erectile dysfunction is a frequent cause for relapse to alcohol consumption in individuals even after de-addiction management with drugs. Fahrner EM[50] (1987) reported , 75% prevalence of sexual dysfunctions in alcohol addicts, loss of libido being the most common (31%), second commonly erectile dysfunction (22%), followed by premature ejaculation (18%). They maintained the almost same prevalence (66%) after 9 months of follow up. He also found 31% of them had one sexual dysfunction and 44% of them had two or more sexual dysfunction.

In a study on male sexual function among chronic alcoholics Schiavi RC et al[51] (1995) assessed the effect of chronic alcoholism on sexual function during the period of abstinence from alcohol. The chronic alcoholics and control groups showed no difference in any domains of sexual function or in the prevalence of sexual dysfunctions. He also

concluded that sexual dysfunction due to alcohol was reversible with abstinence.

O'Farrell et al[52] (1998) found that prevalence of serious erectile dysfunction was more than three times the prevalence in comparing with demographically similar non-alcoholic men. Tilman wetterling et al[53] (1999) concluded that erectile dysfunction along with other medical disorders is most common in heavy drinkers comparing with episodic drinkers. Unlike most of other medical complications of alcohol ED was not significantly associated with severity of drinking.

Rosen RC[54] (2003) found a positive association between the quantity, frequency, and duration of alcohol consumption with erectile dysfunction, decreased sexual desire and retarded ejaculation. BL Cho et al[55] (2003) concluded that heavy alcohol consumption is associated with increased risk of ED but overall pattern of consumption was not found to be associated with an increased risk of erectile dysfunction. Heavy smoking was associated with an increased risk of erectile dysfunction.

A Nigerian study by Gbenga Okulate et al[56] (2003) revealed that prevalence of erectile dysfunction was increasing with age, varying from 36-58%, among them around10% had alcohol abuse. Nicolosi A et al[57] (2003) in his cross-national study found that the prevalence of moderate

or complete erectile dysfunction was negatively associated with alcohol drinking even in heavy drinkers.

A population based cross sectional cohort study by MR Safarinejad[58] (2003) revealed around 18 % prevalence of erectile dysfunction among population, among them smokers has higher risk, and the risk increased with duration of smoking. A Study on developing countries by KZM Shaeer et al[59] (2003) showed Alcohol use has a negative association with erectile dysfunction; He also reported only half the prevalence of erectile dysfunction in alcoholics when comparing with controls.

De Klerk et al (2003) found a 77% prevalence of erectile dysfunction in a mixed race population among them alcohol was significantly associated with erectile dysfunction in elderly people but smoking was associated with ED in younger age group. He also found that the moderate to severe ED had a significant association with dissatisfaction in sex. A population based follow up study of baseline erectile dysfunction free men by R Shiri et al[60] (2004) showed alcohol consumption, heavy consumption and marriage has no effect on erectile function which is similar with the finding of another important population study The Massachusetts Male Ageing Study[61] (MMAS).

In MMAS the prevalence of erectile dysfunction was 52% and showed double the risk of moderate to severe erectile dysfunction in smokers during 10 years follow up period. BJ de Boer et al[62] (2004) found prevalence of erectile dysfunction was around 16% at primary care level. Only alcohol consumption was independently related to erectile dysfunction among all life style factors included in his study. Psychological factors like depression, relational problem, overwork and stress are significantly associated with ED. He also found a significant association between ED with sexual dissatisfaction and orgasmic problems. Lyngdorf et al[63](2004) Found that alcohol consumption is not having any relationship with Erectile dysfunction, although the prevalence rate is 52%. But smokers had higher frequency of erectile dysfunction than non smokers.

Meta-analysis of 12 cross-sectional studies and a prospective cohort by JYW Cheng et al[64](2007) showed that alcohol consumption and sexual function is having complex relationship, with low to moderate consumption pattern and duration of consumption had negative correlation with erectile dysfunction and excessive drinking conferring less protection. This similar finding was found in HPFS cross sectional study[65] .But after follow-up of the subjects in HPFS study they found no

significant associations between alcohol consumption and erectile dysfunction.

Jiang He[66] (2007) found that cigarette smoking is a risk factor for erectile dysfunction with dose response relationship in odds ratio after adjusting the other vascular etiological factors. The prevalence of ED among 35-75 years of age group smokers varied from 6.4% in younger to 55% in elderly people. Almost equal number of mean population found in both erectile dysfunction and non dysfunction group with regard to smoking and alcohol as a risk factor. The mean age for erectile dysfunction group (54 yrs) among smokers is significantly higher than non dysfunction group (45 yrs).

A original research of population-based cross-sectional study, conducted by Kew-Kim Chew et al[67](2009) suggest a negative association between alcohol consumption and Erectile dysfunction. In a study among Chinese men conducted by A C K Lee et al[68] (2010) revealed that, alcohol drinkers who consumed three or more standard drinks a week were more likely to report Erectile dysfunction compared with non alcoholics.

In his review article Bang-Ping Jiann[69] concluded that Erectile dysfunction and coronary artery disease share similar risk factors, among

which one is alcohol consumption, which is related to erectile function in a J-shaped manner, with moderate consumption conferring had protective effect and greater consumption fewer benefits.

ALCOHOL AND SEXUAL DYSFUNCTION: PATHOPHYSIOLOGY

Chronic ingestion of alcohol impairs endothelial functions in association with reduced NO bioavailability. The endogenous Nitric oxide synthase inhibitor, dimethylarginine may participate in decreased synthesis of NO. Chronic alcohol intake also impairs penile erectile function possibly by interfering with endothelial, but not nitrergic function[70]. Chronic alcohol consumption in men produced a detrimental effect on both secretion of testosterone[71] and its metabolism[72] and contributing to atrophy of testis and impotence[73]. Erectile dysfunction has been found in chronic alcoholics, regardless of hepatic dysfunction[74]. Fahrner et al[51] (1987) found that both sexual dysfunction and depression frequently caused by disturbance in HPG axis .

Snyder and Karacan[75](1981) found that less frequent, slower and less rigid nocturnal erections were found more likely in alcohol dependents than a non-alcoholic group. In his article on alcohol and human sexuality Lief C Crowe et al[76] (1989) concluded that, alcohol is

having dis-inhibiting effects on psychological sexual arousal especially more on lower dose and suppressing effect on physiological sexual response at higher dose. Martin Hasselblatt et al[77](2003) concluded that persistent increase level of free and total testosterone level even after sustained abstinence from alcohol, imply disturbance in Hypothalamc-Pituitary- Gonadal axis .It could be a contributing factor for Erectile dysfunction and low sexual desire.

ALCOHOL AND SEXUAL DYSFUNCTION: INDIAN SCENARIO

In a brief study of comorbid psychiatric conditions in alcohol dependence patients Heramani singh et al[78] (2005) found out that depression is the most common and significantly comorbid one compared with controls and the antisocial personality disorder, phobic disorders are the next common one. In this group around 9% of study population had sexual dysfunction. A Indian study by Bijil simon Arackal et al (2007)[79]revealed 72% of alcoholics had at least one type of sexual dysfunction and 48% had more than one sexual dysfunction. The prevalence of premature ejaculation, low sexual desire, erectile dysfunction, Orgasmic dysfunction, intercourse dissatisfaction and overall satisfaction were 37.5%, 36%, 33.3%, 14%, 27% ,20% respectively. They also found that sexual dysfunctions are not depending

with duration of alcohol (mean-8.6 years) and age, and no more likelihood of sexual dysfunction in nicotine dependents than non nicotine users.

AIM

To assess the prevalence and pattern of sexual dysfunction among patients with alcohol dependence syndrome, in comparison with non alcoholics

OBJECTIVE

a. To assess the prevalence of sexual dysfunction in alcohol dependents
b. To assess the pattern of sexual dysfunction in relation to duration of alcohol consumption, duration of marriage, stressful life events and nicotine dependence.
c. To understand the prevalence of sexual dysfunction pertaining to socio-demographic profile among alcoholics and non alcoholics.

STUDY DESIGN

A cross sectional case control study of 30 patients admitted for deaddiction treatment and 30 controls from relatives of patients.

INCLUSION CRITERIA

a. Male Patients in the age group of 18-50 years who are married
b. Patient meet the criteria for alcohol dependence syndrome as per ICD-10 research diagnostic criteria chosen as cases
c. Persons who have not been consuming alcohol for the past one year and no evidence of alcohol dependence before that are chosen as controls.
d. Patients who have given consent for study

EXCLUSION CRITERIA

a. Patients who has present and past history of medical illness and psychiatric illness
b. Patients who has mental retardation and dementia.
c. Substance use other than alcohol and tobacco for cases and other than tobacco for controls.
d. Patients with history of chronic drug intake which are known to cause sexual dysfunction for the past one year like -antipsychotics, antidepressants, anti-hypertensives, steroids, etc.

HYPOTHESIS

- Prevalence of sexual dysfunction high among persons with alcohol dependence comparing with non alcoholics
- Erectile dysfunction is the higher for persons with alcohol dependence than controls.
- Persons with alcohol dependence and controls do not differ with regard to premature ejaculation.
- Duration of alcohol consumption increases the risk of sexual dysfunction in multiple domains
- Significant stressful life events in the past one year increases the risk of sexual dysfunction in alcohol dependence patients
- Orgasmic dysfunction is the least common sexual dysfunction among alcohol dependence and non alcoholic persons
- Sexual dysfunction higher in persons with both alcohol dependence and nicotine dependence comparing with alcohol dependence alone.

INSTRUMENTS USED

- Proforma for socio-demographic data
- Presumptive stressful life event scale
- Kuppusamy's socio-economic scale
- Alcohol use disorders identification test (AUDIT)
- International index for erectile function questionnaire (IIEF)
- Premature ejaculation diagnostic tool (PEDT)
- Fagerstrom test for nicotine dependence

MATERIALS AND METHODS

Institutional ethical committee's approval was obtained before conducting the study. Study group comprised of those admitted for de-addiction treatment and meet the above criteria at Goverment Rajaji Medical college Hospital, Madurai Medical college, Madurai during the period from may 2011 to august 2012 .The control group was selected from relatives of patients who was admitted in both psychiatry and de-addiction ward.

Cases and controls were included after getting informed consent in the mother tongue. For illiterates, the content was read and then written consent was obtained. Cases are chosen after the patients fulfil criteria for alcohol dependence syndrome in ICD-10 Research Diagnostic Criteria (WHO) which was confirmed by two senior psychiatric consultants. Socio-demographic profile of both case and control were recorded in the semistructured proforma. All cases enrolled in the study were admitted in de-addiction ward. All the instruments were used once the patient was detoxified and became amenable for administering rating scales. They were assessed in a single session.

Central tendencies and the dispersion of the variables were studied using descriptive statistical methods such as mean, standard deviation.

The study group and control group were matched in respect of sociodemographic profile to identify the confounding variables. The matching was performed according to the type of variable using chi-square test and student 't' test. The prevalence of sexual dysfunction was identified by comparing the two groups in respect of their alcohol dependence by respective tests of significance. The above statistical procedure was performed by using SPSS software. The P value of less than 0.05 was treated as significant.

SOCIOECONOMIC SCALE (S.E.Gupat and B.P.Sethi 1978, Kuppusamy 1961)

Socioeconomic scale consists of scores based on three variables namely education, occupation, and income on the basis of ten point scale. It consists of ten categories are grouped with 5 social class namely very high, high, upper middle, lower middle and very low. The 10 point scale consists of 200 scores with equal class interval. The inter-rater reliability is found to be very high (r=0.9). This scale incorporates guidelines to score children dependent person, married, and unmarried subjects. His general principle applied that the initial scores deals remarkable lower 8 position. The next 60 scores related to average to slightly above position and the scores between 100-200 pertains to the higher position.

PRESUMPTIVE STRESSFUL LIFE EVENTS SCALE (PSLES)

This scale was developed by Gurmeet Singh[80] and co-workers in 1983.It had been derived from Holme's and Rahe's social adjustment rating schedule. It has 51 items related to various stressful life events in the life of an individual relevant in our culture and was administered in a semi structured interview manner. It taps desirable, undesirable and ambiguous life events in last one year. It gives an individual stress score and cumulative stress score for computation. The scale is simple to administer to literate and illiterate subjects. This scale assessed the stressful life events for past one year preceding the interview.

ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

The AUDIT (Babor et al. 2001)[81] was originally developed as screening instrument for use in primary care settings to detect early hazardous or harmful alcohol drinking. It includes items that assess three domains includes in ICD-10 for alcohol use disorders: alcohol dependence; harmful drinking; and hazardous drinking. The10-item core self-report or clinician-administered covers three different aspects of drinking: 1) quantity and frequency of alcohol use indicative of hazardous alcohol use (item1-3); 2) indicators of dependence (item4-6);

and 3) adverse consequences suggesting harmful use (item 7-10). The items are scored 0 (”never”) to 4(“daily or almost daily”) for most items and are added together, with total scores ranging from 0-40. It takes about 2-3 minutes to administer the AUDIT core questionnaire and score it. The AUDIT has shows high internal consistency and Test-retest reliability (0.64 to 0.92).Overall, median sensitivity is about 0.86 and median specificity is about 0.89. No training is required to administer and score the core assessment. It’s questionable accuracy in detecting alcohol problems in females, adolescents and elderly patients are the major limitation.

FAGERSTROM TEST FOR NICOTINE DEPENDENCE (FTND)

The FTND (Fagerstrom and Schneider 1989)[82] was designed to measure the level of nicotine dependence related to cigarette smoking. It items in this scale evaluate the quantity of cigarette smoking, the compulsion to use, and the dependence. The FTND contains three yes/no and three multiple choice questions. It can be used in an interview or self-report format. The items are summed to yield a total scored of 0-10. No specific cut-off points are used to yield a diagnosis of dependence. It takes about 3 minutes to administer and score the FTND. No training required. No specific cut points exits for diagnosing nicotine dependence.

The FTND can be used to estimate the degree of dependence. Test –retest reliability was 0.88.

INTERNATIONAL INDEX OF ERETILE FUNCTIONING (IIEF)

The IIEF is a 15-item self-report inventory designed to provide a brief, reliable, and valid measure of erectile function and capacity. The five major measurement domains of the IIEF are Erectile Function, Orgasmic Function, Sexual Desire, Intercourses Satisfaction, Overall Satisfaction. Standardized translated versions were available in various international languages including Tamil.

Screening studies[83] for erectile dysfunction using the Erectile Function domain established a score of 25 as a cut-off for erectile dysfunction, with sensitivity of 0.97 and specificity of 0.88.International consistency coefficients have ranged from 0.73 to 0.99, and test-retest reliability over 4 weeks was observed to be between 0.64 and 0.84. The IIEF performed very well in sensitivity and specificity analysis that evaluated its ability to discriminate erectile dysfunction patients from non-patients (sensitivity=0.97; specificity=0.88).

PREMATURE EJACULATION DIAGNOSTIC TOOL (PEDT)[84]

It is the most common tool used for diagnosing premature ejaculation which was developed by Pfizer Inc. It is a simple and widely

accepted tool developed to standardise the diagnosis of premature ejaculation in studies. It was designed to find out the main components of DSM IV-TR includes: Control, frequency, minimal sexual stimulation, distress, and interpersonal difficulty. It has good internal consistency (cronbach alpha score 0.7) and test retest reliability (0.73).The cut off point for premature ejaculation was set at 11, so that 11 and above score is interpretated as definite PE and score of 9 and 10 was agreed as borderline PE. A score of 8 and below indicate low likelihood of PE.

STATISTICAL ANALYSIS AND RESULTS

TABLE : 1

TABLE SHOWING SOCIO-DEMOGRAPHIC PROFILE OF CASES AND CONTROLS

S.NO	VARIABLES	CASES (N=30)		CONTROL (N=30)		STATISTICAL RESULTS
		n	%	n	%	
1.	AGE					
	BELOW 32	6	20	7	23.3	$x^2 = 0.105$
	32 – 42	18	60	17	56.7	df = 2
	43 AND ABOVE	6	20	6	20	
2.	EDUCATION					
	BELOW PRIMARY	17	56.7	18	60	$x^2 = 0.069$
	HIGH SCHOOL & ABOVE	13	43.3	12	40	
3.	LOCALITY					
	URBAN	22	73.3	15	50	$x^2 = 3.455$
	RURAL	8	26.7	15	50	
4.	OCCUPATION					
	SEMISKILLED	8	26.7	10	33.3	$x^2 = 0.1.783$
	SKILLED	14	46.7	9	30	df = 2
	BUSINESS	8	26.7	11	36.7	
5.	INCOME					
	BELOW 5000	5	16.7	5	16.7	$x^2 = 0.095$
	5000 - 10000	18	60	17	56.7	df = 2
	ABOVE 10000	7	23.3	8	26.7	
6.	RELIGION					
	HINDU	26	86.7	27	90	$x^2 = 0.162$
	NON HINDU	4	13.3	3	10	

***P < 0.05**

From the above table it is found that around 20 % of the respondents belongs to below 32 years [case : 20%, control: 23.3%]. Similar number of respondent do belongs to 43 and above years of age. It is found that majority of them belongs to the age group of 32- 42 years of age. There is no statistically significant difference between case and control with regard to Age

Around 58 % of the respondents belongs to below primary education [case: 56.7%, control: 60%] and around 41% of the respondents belongs to high school and above education [case: 43.3%, control: 40%]. It is found that majority of them belongs to the educational group of below primary. There is no significant difference between case and control with regard to Education

It is found that around 61 % of the respondents belongs to urban locality [case: 73.3%, control: 50%] and around 38% of the respondents belongs to Rural area [case: 26.7%, control: 50%]. It is found that majority of them belongs to Urban locality. There is no significant difference between case and control with regard to Locality

Around 30 % of the respondents belongs to semiskilled occupational group [case: 26.7%, control: 33.3%]. Similar number of respondent do belongs to business group. It is found that majority of them belongs to the

skilled occupation. There is no significant difference between case and control with regard to occupation.

Around 16 % of the respondents belongs to below 5000 rupees income [case: 16.7%, control: 16.7%] and 25% of respondents belongs to above 10000 rupees income [case: 23.3%, control: 26.7%]. It is found that majority of them falls in the income range of 5000-10000 rupees per month. There is no statistically significant difference between case and control with regard to Income.

From the above table it is found that around 88 % of the respondents belongs Hindu [case: 86.7%, control: 90%] and around 11% of the respondents belongs to Non Hindu. [case:13.3%, control: 10%]. It is found that majority of them belongs to Hindu. There is no significant difference between case and control with regard to Religion.

TABLE: 2

TABLE SHOWING COMPARISON OF FAMILY HISTORY OF ALCOHOLISM, DURATION OF MARITAL LIFE, SES BETWEEN CASE AND CONTROL.

S.NO	VARIABLES	CASES (N=30)		CONTROL (N=30)		STATISTICS RESULTS
		n	%	n	%	
1.	FAMILY HISTORY					
	PRESENT	11	36.7	12	40	$x^2 = 0.071$
	ABSENT	19	63.3	18	60	
2.	MARITAL LIFE DURATION					
	BELOW 8 YEARS	9	30	6	20	$x^2 = 0.890$ df = 2
	9 – 17 YEARS	14	46.7	17	56.7	
	18 & ABOVE	7	23.3	7	23.3	
3.	SOCIO-ECONOMIC STATE					
	UPPER MIDDLE	3	10	4	13.3	$x^2 = 0.165$ df = 2
	MIDDLE	23	76.7	22	73.3	
	LOWER MIDDLE	4	13.3	4	13.3	

***P < 0.05**

From the above table it is found that around 38 % of the respondents having family history of alcoholism. [case: 36.7%, control: 40%] and around 61% of the respondents are not having family history of alcoholism [case: 63.3%, control: 60%]. It is found that majority of them have to negative family history of alcoholism. There is no significant difference between case and control with regard to Family history of Alcoholism.

It is found that around 25 % of the respondents belong to below 8 years of marital life [case: 30%, control: 20%]. Similar number of respondent do belongs to 18 and above years of marital life. It is found that majority of them belongs to 9-17 years of marital life. There is no significant difference between case and control with regard to duration of marital life.

Around 12 % of the respondent belongs to upper middle socio economic status [case: 10%, control: 13.3%]. Similar number of respondents do belongs to lower middle. It is found that majority of them belongs to middle socio economic status. There is no significant difference between case and control with regard to Socio economic status.

TABLE : 3

TABLE SHOWING OVERALL PREVALENCE OF SEXUAL DYSFUNCTIONS AMONG CASE AND CONTROL.

S.NO	PREVALENCE	CASE (%)	CONTROL (%)
1.	AT LEAST ONE SEXUAL DYSFUNCTION	76.6	36.6
2.	MORE THAN ONE SEXUAL DYSFUNCTION	63.3	23.3

From the above table it has been found that the prevalence of at least one sexual dysfunction among case is higher (76.6%) than control (36.6%). The prevalence of more than one sexual dysfunction in case (63.3%) is also higher than control (23.3%).

FIGURE: 1

BAR DIAGRAM COMPARING OVERALL PREVALENCE OF SEXUAL DYSFUNCTIONS IN CASE AND CONTROL

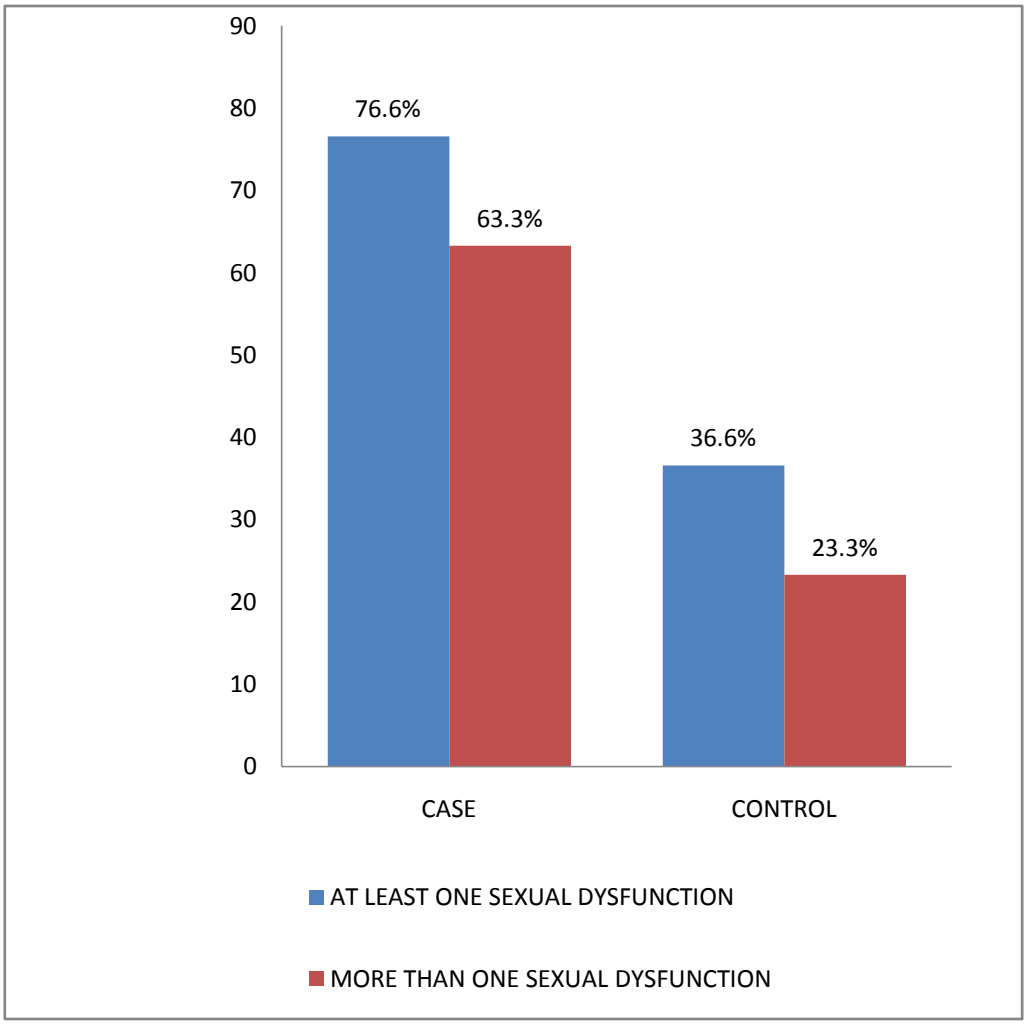


TABLE: 4

TABLE SHOWING SEXUAL DYSFUNCTIONS IN VARIOUS DOMAINS

AMONG CASE AND CONTROL

S.NO	VARIABLE		CASE (N=30)		CONTROL (N=30)		STATISTICAL RESULT
			n	%	n	%	
1.	IIEF: EF	DYSFUNCTION	12	40	6	20	$x^2 = 2.857$ df = 1
		NO DYSFUNCTION	18	60	24	80	
2.	IIEF: IS	DYSFUNCTION	19	63.3	5	16.7	$x^2 = 13.611^*$ df = 1
		NO DYSFUNCTION	11	36.7	25	83.3	
3.	IIEF: OF	DYSFUNCTION	9	30	2	6.7	$x^2 = 5.455^*$ df = 1
		NO DYSFUNCTION	21	70	28	93.3	
4.	IIEF: SD	DYSFUNCTION	13	43.3	2	6.7	$x^2 = 10.756^*$ df = 1
		NO DYSFUNCTION	17	56.7	28	93.3	
5.	IIEF: OS	DYSFUNCTION	15	50	5	16.7	$x^2 = 7.500^*$ df = 1
		NO DYSFUNCTION	15	50	25	83.3	
6.	PEDT	PRESENT	11	36.7	8	26.7	$x^2 = 0.693$ df = 1
		ABSENT	19	63.3	22	73.3	

***P < 0.05**

From the above table it is found that 12 patients [40%] who had alcohol dependence had erectile dysfunction and 6 persons [20%] among control has erectile dysfunction.

There is no statistically significant difference between case and control with regard to Erectile function domain of IIEF.

It is found that 19 patients [63.3%] who had alcohol dependence had dysfunction in intercourse satisfaction and 5 persons [16.7%] among control has dysfunction in intercourse satisfaction.

There is statistically significant difference between case and control with regard to Intercourse satisfaction domain of IIEF.

It is found that 9 patients [30%] who had alcohol dependence had orgasmic dysfunction and 2 persons [6.7%] among control had orgasmic dysfunction.

There is statistically significant difference between case and control with regard to Orgasmic function domain of IIEF.

It is also found that 13 patients [43.3%] who had alcohol dependence had low sexual desire and 2 persons [6.7%] among control had low sexual desire.

There is statistically significant difference between case and control with regard to Sexual desire domain of IIEF.

It is found that 15 patients [50%] who had alcohol dependence had low overall satisfaction and 5 persons [16.7%] among control had low overall satisfaction.

There is statistically significant difference between case and control with regard to Overall satisfaction domain of IIEF.

It is found that majority of cases [63.3%] and controls [73.5%] had no premature ejaculation

There is no statistically significant difference between case and control with regard to premature ejaculation.

FIGURE: 2

BAR DIAGRAM COMPARING THE PREVALENCE OF INDIVIDUAL DOMAINS OF SEXUAL DYSFUNCITIONS AMONG CASE AND CONTROL

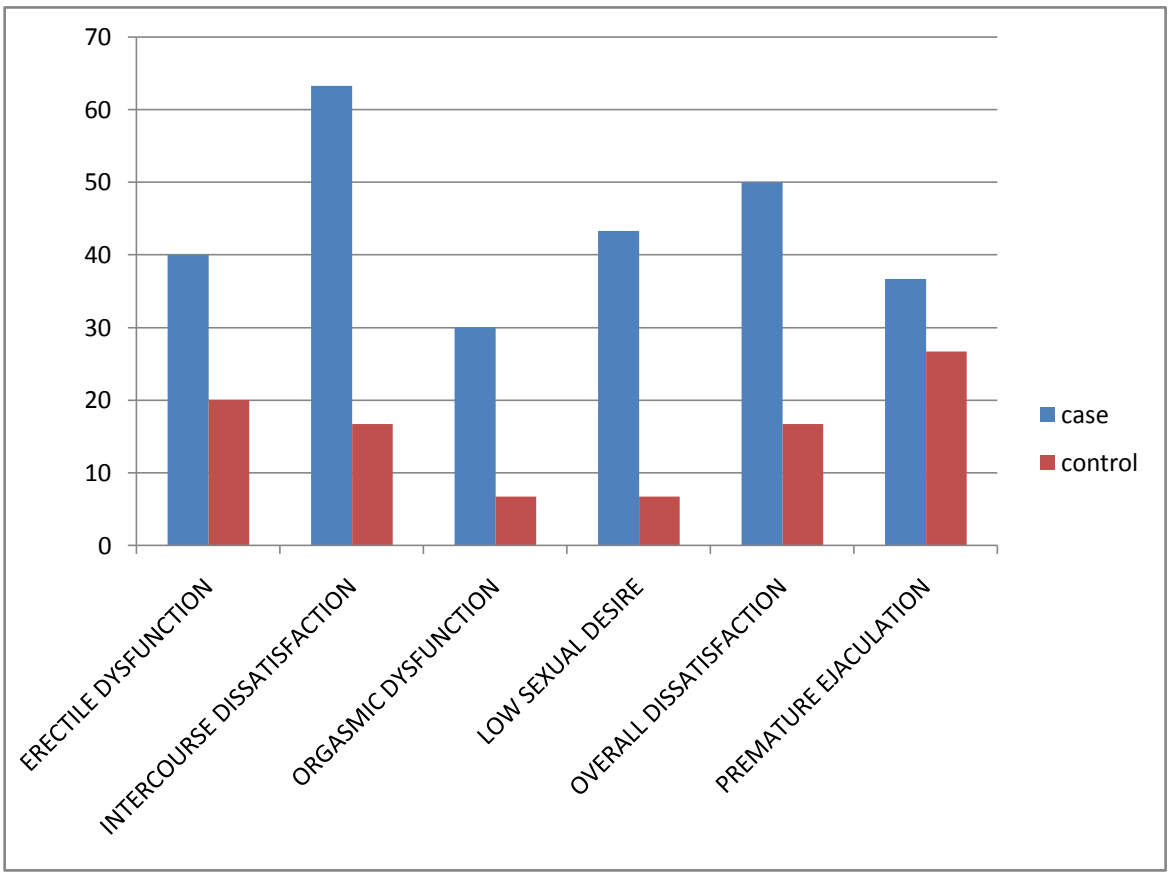


TABLE:5

TABLE SHOWING NICOTINE DEPENDENCE AMONG CASE AND CONTROL

S.No	FAGERSTROM NICOTINE DEPENDENCE	CASE (N = 30)		CONTROL (N =30)		STATISTICAL RESULT
		n	%	n	%	
1.	DEPENDENCE	21	70	20	66.7	$x^2 = 0.077$
2.	NO DEPENDENCE	9	30	10	33.3	df = 1

***P < 0.05**

From the above table it is found that 21 patients [70%] who had alcohol dependence had nicotine dependence and 20 persons [66.7%] among control had nicotine dependence.

There is no statistically significant difference between case and control with regard to nicotine dependence.

TABLE: 6

TABLE SHOWING COMPARISON OF SOCIO-DEMOGRAPHIC VARIABLES LIKE AGE, DURATION OF MARITAL LIFE, SES AND STRESSFUL LIFE EVENTS BETWEEN CASE AND CONTROL.

S.No	VARIBLES	CASE (30)		CONTROL(30)		' t' VALUE
		Mean	SD	Mean	SD	
1.	AGE	37.43	5.77	37.47	6.31	- 0.021
2.	DURATION OF MARITAL LIFE	12.23	6.37	12.43	6.02	- 0.125
3.	SES-SCALE	274	48.46	275.33	43.52	- 0.112
4.	PSLES	95.23	90.49	73.37	45.98	1.180

***P < 0.05**

It has been found that the mean score for case and control for Age is equal [37.4].This observed value is statistically not significant since the 't' value is not significant at 0.05 level.

The mean score of duration of marital life is higher [12.43] for control than the case [12.23].This observed difference is statistically not significant since the 't' value is not significant at 0.05 level.

The mean score of socio-economic scale is higher [275.33] for control than the case [274].This observed difference is statistically not significant since the ‘t’ value is not significant at 0.05 level.

The mean score of Presumptive stressful life event scale is higher [95.23] for case than the control [73.37].This observed difference is statistically not significant since the ‘t’ value is not significant at 0.05 level .

Based on the above findings it is found that no difference between case and control in relation to age, socio-economic status, duration of marital life, presumptive stressful life events.

TABLE: 7

TABLE SHOWING COMPARISON OF SEXUAL DYSFUNCTION IN VARIOUS DOMIANS BETWEEN CASE AND CONTROL.

S.No	VARIABLES	CASE (30)		CONTROL(30)		' t' VALUE
		Mean	SD	Mean	SD	
1.	IIEF:ERECTILE FUNCTION	24.17	6.35	26.53	4.66	- 1.644
2.	IIEF:INTERCOURSE SATISFACTION	10.40	3.11	13.13	2.04	- 4.018*
3.	IIEF:ORGASMIC FUNCTION	8.40	2.19	9.83	0.53	- 3.483*
4.	IIEF:SEXUAL DESIRE	8.33	1.62	9.43	1.04	- 3.122*
5.	IIEF:OVERALL SATISFACTION	7.70	2.27	9.17	1.39	- 3.011*
6.	PREMATURE EJACULATION	6.63	5.95	4.43	3.04	1.802

***P < 0.05**

From the above table it has been observed that the mean score of IIEF: Erectile function for case is lower [24.17] than the case [26.52]. This

observed difference is statistically not significant since the ‘t’ value is not significant at 0.05 level.

It has been observed that the mean score of IIEF: Intercourse satisfaction for case is lower [10.40] than the control [13.13]. This observed difference is statistically significant since the‘t’ value is significant at 0.05 level.

The mean score of IIEF: Orgasmic function for case is lower [8.40] than the control [9.83]. This observed difference is statistically significant since the ‘t’ value is significant at 0.05 level.

The mean score of IIEF: Sexual desire for case is lower [8.33] than the control [9.43]. This observed difference is statistically significant since the ‘t’ value is significant at 0.05 level.

The mean score of IIEF: Overall satisfaction for case is lower [7.70] than the control [9.17]. This observed difference is statistically significant since the ‘t’ value is significant at 0.05 level.

It has been observed that the mean score of Premature ejaculation diagnostic scale for case is higher [6.63] than the control [4.43]. This observed difference is statistically not significant since the ‘t’ value is not significant at 0.05 level .

Based on the above findings, it is observed that intercourse satisfaction, orgasmic function, sexual desire, overall satisfaction has been significantly lower in patients with alcohol dependence syndrome compared with non alcoholics.

TABLE: 8

TABLE SHOWING COMPARISON OF NICOTINE DEPENDENCE BETWEEN CASE AND CONTROL.

S.No	FACTORS	CASE (30)		CONTROL(30)		' t' VALUE
		Mean	SD	Mean	SD	
1.	FAGERSTROM	3.83	3.36	4.03	3.31	- 0.232

***P < 0.05**

From the above table it has been observed that the mean score of Fagerstrom nicotine dependence for control is higher [4.03] than the case [3.83]. This observed difference is statistically not significant since the 't' value is not significant at 0.05 level.

TABLE: 9

TABLE SHOWING COMPARISON OF ERECTILE FUNCTION IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES.

S.NO	VARIABLE	ERECTILE FUNCTION				't' VALUE
		DYSFUNCTION (n=12)		NON DYSFUNCTION (n=18)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	30.92	4.11	28.06	4.58	- 1.702
2.	PSLES	152.17	92.27	57.28	68.17	- 3.242*

***P < 0.05**

From the above table patients with erectile dysfunction have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was not significant for AUDIT, but significant for PSLES.

TABLE: 10

TABLE SHOWING COMPARISON OF INTERCOURSE SATISFACTION IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	INTERCOURSE SATISFACTION				't' VALUE
		DYSFUNCTION (n=19)		NON DYSFUNCTION (n=11)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	30.68	3.84	26.64	4.98	2.492*
2.	PSLES	119.63	92.41	53.09	72.74	- 2.044*

***P < 0.05**

From the above table patients with less intercourse satisfaction have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was significant for both AUDIT and PSLES.

TABLE: 11

TABLE SHOWING COMPARISON OF ORGASMIC FUNCTION IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	ORGASMIC FUNCTION				't' VALUE
		DYSFUNCTION (n=9)		NON DYSFUNCTION (n=21)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	30.89	4.86	28.48	4.49	- 0.310
2.	PSLES	148.67	96.11	72.33	79.65	2.263*

***P < 0.05**

From the above table patients with orgasmic dysfunction have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was not significant for AUDIT, but significant for PSLES.

TABLE: 12

TABLE SHOWING COMPARISON OF SEXUAL DESIRE IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	SEXUAL DESIRE				't' VALUE
		DYSFUNCTION (n=13)		NON DYSFUNCTION (n=17)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	32.23	3.37	26.88	4.19	- 3.757*
2.	PSLES	128.92	101.1	69.47	74.49	- 1.857

***P < 0.05**

From the above table patients with low sexual desire have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was significant for AUDIT, but not significant for PSLES.

TABLE: 13

TABLE SHOWING COMPARISON OF OVERALL SATISFACTION IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	OVERALL SATISFACTION				't' VALUE
		DYSFUNCTION (n=15)		NON DYSFUNCTION (n=15)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	29.67	4.68	28.73	4.62	- 0.542
2.	PSLES	116.27	101.45	74.20	75.64	- 1.287

***P < 0.05**

From the above table patients with less overall satisfaction have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was not significant for both AUDIT and PSLES.

TABLE: 14

TABLE SHOWING COMPARISON OF PREMATURE EJACULATION IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	PREMATURE EJACULATION				't' VALUE
		PRESENT (n=11)		ABSENT (n=19)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	30.91	4.68	28.21	4.47	1.568
2.	PSLES	127.36	111.60	76.63	72.65	- 1.512

***P < 0.05**

From the above table patients with premature ejaculation have high mean score on AUDIT and PSLES comparing with patients without dysfunction. This observed difference was not significant for both AUDIT and PSLES.

TABLE: 15

TABLE SHOWING COMPARISON OF NICOTINE DEPENDENCE IN RELATION TO AUDIT SCORE AND PSLES AMONG CASES

S.NO	VARIABLE	NICOTINE DEPENDENCE				't' VALUE
		DEPENDENCE (n=21)		NON DEPENDENCE (n=9)		
		Mean	SD	Mean	SD	
1.	AUDIT SCORE	29.95	4.64	27.44	4.45	- 1.390
2.	PSLES	102.62	95.07	78	81.32	- 0.676

***P < 0.05**

From the above table patients with nicotine dependence have high mean score on AUDIT and PSLES comparing with patients without dependence. This observed difference was not significant for both AUDIT and PSLES.

TABLE: 16

TABLE SHOWING CORRELATION MATRIX FOR THE SELECTED SUBJECT VARIABLES

VARIABLES	AGE	DURATION OF MARRIAGE	DURATION OF ALCOHOL CONSUMPTION	FAGERSTROM
IIEF: EF	0.015	0.068	- 0.011	- 0.294
IIEF: IS	- 0.181	0.032	- 0.164	- 0.247
IIEF: OF	0.084	0.200	0.072	- 0.131
IIEF: SD	- 0.053	0.032	- 0.287	- 0.065
IIEF: OS	- 0.095	- 0.038	- 0.02	- 0.340
PEDT	- 0.022	- 0.102	0.052	0.136

***P < 0.05**

CORRELATION BETWEEN AGE AND IIEF DOMAINS, PREMATURE EJACULATION SCORE

It has been found out that there exist a Negative association between Age and Intercourse satisfaction, Sexual desire, overall satisfaction domains of IIEF [r = - 0.181, r= -0.053, r= -0.095 respectively] which means as the age increases the scores of intercourse satisfaction, Sexual desire, overall satisfaction decreases. This indicates higher the age, higher will be the intercourse dissatisfaction, impaired sexual desire, and overall dissatisfaction. However there exists no significant relationship.

A negative association between Age and Premature ejaculation score [r= -0.022] which means as the age increases the premature ejaculation decreases. This indicates higher the age, lower will be the premature ejaculation. However there exists no significant relationship.

It has been found out that there exist a positive association between Age and Erectile function, Orgasmic function domains of IIEF [r = 0.015,r= 0.084 respectively] which means as the age increases the Erectile function, Orgasmic function scores also increases. This indicate that higher the age, lower will be the Erectile dysfunction and Orgasmic dysfunction. However there exists no significant relationship.

CORRELATION BETWEEN DURATION OF MARITAL LIFE AND IIEF DOMAINS, PREMATURE EJACULATION SCORE

It has been found out that there exist a positive association between duration of marital life and Erectile function, intercourse satisfaction, Orgasmic function and sexual desire domains of IIEF [r=0.068,r=0.032,r=0.200,r= 0.032respectively] which indicate that as the duration of marital life increases , the erectile function, intercourse satisfaction, orgasmic function and sexual desire scores increases. This indicates higher the duration of marriage lower the dysfunctions of above domains of IIEF. However there exists no significant relationship.

It has been found out that there exist a Negative association between duration of marital life and, overall satisfaction domain of IIEF, Premature ejaculation [r = - 0.038, r= -0.102, respectively] which means as the duration of marital life increases, sores of overall satisfaction and PEDT decreases. This indicates higher the duration of marriage higher will be the overall dissatisfaction and lower will be the premature ejaculation. However there exists no significant relationship.

CORRELATION BETWEEN DURATION OF ALCOHOL CONSUMPTION AND IIEF DOMAINS, PREMATURE EJACULATION SCORE

It has been found out that there exist a Negative association between duration of alcohol consumption and Erectile function, Intercourse satisfaction, Sexual desire, overall satisfaction domains of IIEF [r = -0.011,- 0.164,- 0.287,- 0.02respectively] which means as the duration of alcohol consumption increases the scores of erectile function, intercourse satisfaction, sexual desire and overall satisfaction decreases. This indicates higher the duration of alcohol consumption, higher will be the erectile dysfunction, intercourse dissatisfaction, impaired sexual desire and overall dissatisfaction. However there exists no significant relationship.

It has been found out that there exist a positive association between duration of alcohol consumption and Orgasmic function domain of IIEF, PEDT [r = 0.072,r=0.052 respectively] which means that as the duration of alcohol consumption increases , the orgasmic function and premature ejaculation scores increases. This indicates higher the duration of alcohol consumption lower the orgasmic dysfunction and higher the premature ejaculation. However there exists no significant relationship.

CORRELATION BETWEEN FAGERSTROM NICOTINE DEPENDENCE AND IIEF DOMAINS, PEDT

It has been found out that there exist a Negative association between fagerstrom nicotine dependence score and Erectile function, Intercourse satisfaction, Orgasmic function, Sexual desire, overall satisfaction domains of IIEF [r = - 0.294, - 0.247, - 0.131, - 0.065, - 0.340 respectively] which means as the nicotine dependence increases the scores of erectile function, intercourse satisfaction, orgasmic function, sexual desire and overall satisfaction decreases. This indicates higher the Nicotine dependence, higher will be the erectile dysfunction, intercourse dissatisfaction, orgasmic dysfunction, impaired sexual desire and overall dissatisfaction. However there exists no significant relationship.

It has been found out that there exist a positive association between fagerstrom nicotine dependence score and, premature ejaculation score [r = 0.136] which means that as the nicotine dependence increases, the premature ejaculation scores increases. This indicates higher the Nicotine dependence higher the premature ejaculation. However there exists no significant relationship.

TABLE: 17

TABLE SHOWING CORRELATION BETWEEN ERECTILE FUNCTION AND OTHER DOMAINS OF IIEF

	IIEF:IS	IIEF: OF	IIEF: SD	IIEF: OS
IIEF: EF	0.540**	0.451*	0.381*	0.602**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

It has been found out that Erectile function have a positive association with intercourse satisfaction, Orgasmic function and sexual desire, overall satisfaction domains of IIEF [r=0.540**,0.451*,0.381*, 0.602** respectively] which indicate that as the erectile function score decreases the, intercourse satisfaction, orgasmic function, sexual desire and overall satisfaction scores also decreases. This indicates higher the erectile dysfunction higher will be the dysfunction of other domains of IIEF. However there exist Significant relationship as the 't' value for 'r' values are significant at 0.0 level for intercourse satisfaction and overall satisfaction, at 0.05 level for orgasmic function and sexual desire .

TABLE: 18

TABLE SHOWING CORRELATION BETWEEN PEDT AND IIEF DOMAINS

	IIEF: EF	IIEF: IS	IIEF: OF	IIEF: SD	IIEF: OS
PEDT	- 0.604**	- 0.437*	- 0.279	- 0.019	- 0.655**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

It has been found out that there exist a Negative association between premature ejaculation and all domains of IIEF [r = - 0.294, - 0.247, - 0.131, - 0.065, - 0.340 respectively] which means as the premature ejaculation score increases the scores of all IIEF decreases. This indicates higher the premature ejaculation, higher will be the Dysfunction of all domains of IIEF. However there exist significant relationship as the 't' value is significant at 0.01 level for erectile function overall satisfaction, at 0.05 level for intercourse satisfaction and not significant at 0.05 level for orgasmic function and sexual desire.

DISCUSSION

This study was conducted in the Department of Psychiatry, Govt Rajaji Hospital, Madurai. Institutional ethical committee approval for conducting the study was obtained from the Institutional ethical committee on 23.02.2012. The study was conducted in the period between May 2011 to August 2012.

The cases were chosen from the patients admitted in the deaddiction ward of Department of Psychiatry, Govt Rajaji Hospital, Madurai and controls were chosen from the relatives of patients admitted at deaddiction ward and psychiatry ward. The cases and controls selected based on the selected criteria as the samples were selected by stratified random sampling.

To our knowledge few number of international studies and very few number of Indian studies have compared sexual dysfunction due to alcohol consumption with non alcoholics. Among those studies, most of the studies focused on the erectile function only, and very few studies have incorporated other domains of sexual functioning like satisfaction in sex, sexual desire, orgasmic function, ejaculatory function.

In our study the total number of cases and controls chosen are thirty each. The mean age of case is 37.43 years and control is 37.47 years. Majority of the cases (60%) and controls (56.7%) falls in the age group of 32-42 years. Most of the studies done earlier particularly Enzlin et al (2004), AL el sakka (2004), Cheng et al (2007) and Jiang he (2007) consist of samples above 40 years age group as a main concern of study of sexual functioning.

In the present study equal number of the case (56.7%) and control (60%) group are from below primary level of education, but Jean Kim et al (2008) found that most of the study population belongs to tertiary education. Around 74% of the cases are from urban background and equal number of respondents enrolled from both urban and rural region in control group. This finding is similar with Kaisla et al (2007) who found that urban living is a risk factor for excessive alcohol consumption.

The skilled workers occupational group forms the maximum percentage of respondents in case (46.7%) and least percentage of control group (30%). This is contrary with the finding that unemployment is a risk factor for alcohol consumption by Kaisla et al (2007).When the case and control are grouped based on monthly income both groups have high number of samples in the range of 5000-10000 Rupees per month. Cheng

et al (2007) identified a significant positive association between monthly income with erectile function and intercourse satisfaction. As our community is predominantly having Hindu population it is also reflected in our study.

Around 36.7% of cases have family history of alcoholism which is slightly exceeded by control group (40%). Several studies and literatures reported that family history of alcoholism is a risk factor but further studies needed to confirm whether these factors has any relationship in development of sexual problems in alcoholics. In this study the average years of marital life was 9-17 years for majority of case (46.7%) and control (56.7%) and majority of both respondents belongs to middle socio-economic status. On statistical analysis there is no significant difference between cases and controls with regard to above discussed socio-demographic variables. This indicates that the samples in case and control are matched well in all aspects.

In the present study, 76.6% of alcohol dependents had at least one type of sexual dysfunction which is significantly higher than control (36.6%).This finding is comparable with the study of Whalley (1978) who reported 54% prevalence of sexual dysfunction in alcohol addicts which is significantly more than social drinkers (28%). Jenson et al

(1984) also replicated the similar significance in sexual dysfunction between alcoholics (63%) and controls (10%). In their study Bijil Simon et al (2007) and Vijayasenan (1981) reported the prevalence of at least one type of sexual dysfunction in alcoholics were 72% and 71% respectively which is similar to our study findings.

The present study is comparable with the 75% prevalence of sexual dysfunction in alcoholics as reported by Fahrner (1987) but Mandel et al (1983) also reported 84% prevalence of some sexual dysfunction related to alcohol abuse which is slightly more than the prevalence of our study. These findings indicate alcoholics are having high proportion of sexual dysfunction comparing with non alcoholics.

In our study, more than one sexual dysfunction in a same person was found in 63.3% of alcoholics and 23.3% of non alcoholics which indicates alcoholics are having more risk of developing multiple sexual dysfunctions than non alcoholics. This is comparable with the study of Bijil simon (2007) who reported 48% have more than one sexual dysfunction in alcoholics and 44% prevalence of two or more sexual dysfunction in alcoholics as reported by Fahrner (1984).

The most common sexual dysfunction among alcoholics in present study is dissatisfaction in intercourse (63.3%) which is contrary to most

of reported evidences like Jenson et al reported ED and low sexual desire, Vijayasenan reported decreased sexual desire (58%), Bijil Simon identified premature ejaculation (37.5%) and Fahrner reported loss of libido (31%) as most common. In our study, the least common one is orgasmic dysfunction (30%) in alcoholics which is similar to the findings of Bijil Simon, but contrary to the findings of vijayasenan (1981) who reported premature ejaculation (4%) as a least common in alcoholics.

Premature ejaculation (26.7%) is found to be the most common sexual dysfunction among non alcoholics in our study which is similar to the study of Carson et al (2006) who reported that premature ejaculation is the most common sexual dysfunction worldwide among general population except in Middle East region. This similar finding has been replicated in their studies by Verma et al (1998), Kuldeep jain et al (2005). The least commonly reported sexual dysfunction among non alcoholics in our study is low sexual desire and orgasmic dysfunction (6.7% each).

When comparing the erectile dysfunction between alcoholics and non alcoholics in the present study, alcohol dependents have more prevalence of erectile dysfunction (40%) than control (20%) group. However this difference is not statistically significant. The findings of

Bijil simon et al (2007) and Fahrner (1987) are comparable to our study, who found the prevalence of Erectile dysfunction in alcoholics around 33.3% and 22% respectively, but they did not compared it with non alcoholics. Boer et al (2004) found a 16% prevalence of erectile dysfunction at primary care level and among all life style factors alcohol only significantly related to ED. In contrary to our findings, Schiavi et al (1995) found no difference in the prevalence of sexual dysfunction between chronic alcoholics and control group. It has been reported that the prevalence of erectile dysfunction in alcoholics was 10% by Gbenga Okulate (2003) in a prevalence study which is lower than our study and similar lower prevalence of erectile dysfunction (8%) was reported among alcoholics by Lemere et al (1973).

Likewise several other studies including Dunn et al (1999), epidemiology of male erectile dysfunction study (2001), Chen et al (2004), Verma et al (1998), Safarinejad (2003) reported prevalence of erectile dysfunction in general population varied from 12% to 26%. This prevalence is lower than our case population, but similar with the control group of the present study. Contrary to the lower figures of above mentioned studies Oksuz et al (2005) in his study obtained a prevalence of around 60%. More higher prevalence also obtained in a popular study

known as Massachusetts Male Ageing Study (MMAS-2000) and by De klerk et al (2003). This wide variability in the prevalence of erectile dysfunction in studies was due to application of different methodologies, different population, different definition and rating methods, and confounding factors.

Most of the above mentioned studies are based on one month prevalence of sexual dysfunction. Mercer at al (2003) found a low figure of ED (0.8%) in his 6 months prevalence study comparing with his one month prevalence study (5.8%). This fact is true in respect to alcohol as Bacon et al (2003) mentioned in the HPFS study that no significant relationship was found between alcohol and ED during follow up period. Similarly Schiavi et al (1995) concluded that alcohol induced sexual dysfunction was reversible with abstinence. This common notion was contradicted by Fahrner et al (1987) who proved the same prevalence even after 9 months follow up in alcoholics and by Lemere et al (1973) who attributed permanent neurological damage to the persistence of ED even after years of sobriety. From this above findings, it is needed to conduct follow up study for sexual dysfunctions in alcoholics during the period of abstinence to prove whether abstinence reverse the alcohol induced sexual dysfunction or not.

In our study the prevalence of intercourse dissatisfaction in alcohol dependents (63.3%) is higher than control group (16.7%). This observed difference is statistically significant which means alcohol is having adverse effect on intercourse satisfaction. This significance is comparable to the study by Boer et al (2004) who found significant association between alcohol consumption and sexual dissatisfaction but our prevalence is more higher when comparing with the prevalence of dissatisfaction in sex (27%) reported by Bijil Simon et al (2007) among alcohol dependent persons.

Significant difference in the prevalence of orgasmic dysfunction is found between alcohol dependents (30%) and control (6.7%) in this present study. This finding is comparable to the findings that there exist a significant association between alcohol consumption and orgasmic function by Boer et al (2004). Contrary to our figure Bijil Simon et al (2007) in his prevalence study of sexual dysfunction in alcoholics found a prevalence of orgasmic dysfunction (14%) which was the least among his study group. Similarly 8% incidence of orgasmic dysfunction was found by Kuldeep Jain (2000) in men attending infertile clinic who also had alcohol as a risk factor.

In our study the prevalence of reduced sexual desire among alcohol dependents is 43.3%, and 6.7% among controls. There existed a significant difference between case and control with regard to sexual desire. This finding is comparable to the study of Vijayasenan (1981) who found a 58% prevalence of diminished sexual desire among alcoholics. Similar reports also obtained by Fahrner (1984) who revealed loss of libido (31%) as a most common dysfunction .Jensen et al (1984) identified sexual desire disorder was the second common sexual dysfunction among alcoholics which was statistically significant when comparing with controls and similar prevalence (36%) obtained by Bijil Simon et al (2007). Surprisingly Lemere et al (1973) found no loss of sexual desire among alcoholics which is contrary to our finding.

About 50% of alcohol dependents and 16.7% of control group have dissatisfaction in overall sexual life in our study. This higher prevalence of dissatisfaction in overall sexual life among alcoholics compared with control is statistically significant. In contrast Bijil Simon et al (2007) found only 20% prevalence of dissatisfaction in overall sexual life among alcoholics.

Although the alcohol dependents have more prevalence of premature ejaculation (36.7%) in our study comparing with control

(26.7%), no significance was existed statistically. This finding is contradictory with the findings of Fahrner (1984) and Vijayasenan (1981), both of them reported premature ejaculation was the least common sexual dysfunction among alcoholics with the prevalence of 18% and 4% respectively. Additionally Fahrner found that the prevalence of premature ejaculation was increased after one year follow up of alcohol dependents.

The present study showed 70% prevalence of nicotine dependence in alcohol dependents which is almost similar with the nicotine dependence in control (66.7%). Based on these prevalence it is found that both case and control group, have equal number of nicotine dependents which is not significant. So it can be concluded that the confounding effect of nicotine dependence on sexual functioning is not significant in our study. This finding is comparable with Bijil Simon et al (2007) who found around 90% of nicotine dependents in alcoholics, who did not compare the significance of nicotine in sexual dysfunction.

The mean age among alcoholics in our study is 37.43 years and 37.47 in controls. The mean duration of marital life is 12.23 in case and 12.43 in controls. The mean score of socio economic scale score also equal in case and control as like age and duration of marriage. Obviously

no statistical significance was found in regard to the mentioned variables between case and control. This indicates that the case and control samples are well matched and the confounding effect of these factors also not significant in our study.

The International Index of Erectile Function scales measures the functioning of various domains of sexual dysfunction, in which lower the score higher will be the sexual dysfunction. In our study the mean score of erectile function in alcoholics (24.17) is lower than the controls (26.53) but this difference is not significant. This means alcoholics have higher erectile dysfunction than controls which is not significant statistically. Our finding is comparable with Lyngdorf et al (2004) who proposed that alcohol have no significant effect on erectile function although the prevalence is 52%. Shaeer et al (2003) found that alcohol may be inversely related with erectile function or have no significant score on sexual functioning when comparing with controls which is closely similar to our findings.

The mean scores of alcohol dependents with regard to intercourse satisfaction (10.40), orgasmic function (8.40), sexual desire (8.33) and overall satisfaction (7.70) are significantly lower than controls (13.13, 9.83, 9.43, 9.17 respectively). This indicates alcohol dependents have

significantly higher dissatisfaction in intercourse, orgasmic dysfunction, impaired sexual desire and overall dissatisfaction in sex comparing with controls. In premature ejaculation diagnostic tool higher the score, higher will be the dysfunction. In our study the mean score of case (6.63) is higher than control (4.43) which indicates alcohol dependents have higher premature ejaculation than controls, but this difference is not significant.

In the present study the mean score of nicotine dependents for case (3.83) is lower than controls (4.03). This means the controls have higher nicotine dependence than alcohol dependents, but no significance is found. In contrary to our finding Bijil Simon et al (2007) observed almost more than 90% of alcoholics had nicotine dependence.

In our study although all the cases selected are having significant dependence score (>15) in AUDIT, the higher the score higher will be the chance of frequent, hazardous, quantity of drinking and dependence. The present study shows higher AUDIT score in alcohol dependents with erectile function than alcoholics without ED, but no significance is found in statistics. This is similar to what has been replicated in earlier studies. Tilman Wetterling (1999) and Cho et al (2003) reported that erectile dysfunction was more common in heavy drinkers and it was not significantly associated with severity of alcohol consumption. Our study

is similar to the findings of Rosen et al (2003) who observed that the greater quantity, frequency and duration of drinking were associated with erectile dysfunction. In contrary to our study Nicolosi et al (2003) reported that erectile dysfunction has negative association with heavy drinkers and Shiri et al (2004) observed that alcohol consumption has no effect on erectile function.

Among all sexual dysfunction in alcohol dependents, persons with intercourse dissatisfaction and low sexual desire have significantly higher score in AUDIT comparing with alcohol dependents without the relevant sexual dysfunctions. In the present study alcohol dependents with orgasmic dysfunction, overall dissatisfaction and premature ejaculation have higher score in AUDIT than alcoholics without relevant sexual dysfunction, however the difference is not significant. Rosen et al (2003) found that greater quantity and frequency was associated with low sexual desire and premature ejaculation which is comparable to our study.

In our study alcohol dependents with sexual dysfunction in any domain have higher stressful life event score than alcoholics without sexual dysfunctions. However significant association is found only for erectile dysfunction, intercourse satisfaction and orgasmic dysfunction. Hedon (2003) and Corona et al (2004) found that erectile dysfunction has

significant association with stressful events and perceived stressors. Similarly Shiri et al (2004) identified that relational problems, overwork and stress has significant association with erectile dysfunction. These above findings are comparable to our study findings.

In our study intercourse dissatisfaction, low sexual desire, dissatisfaction in overall sexual life and premature ejaculation are associated with increasing age in alcoholics. But erectile dysfunction and orgasmic dysfunction are negatively associated with increasing age among alcoholics. However no significance is found for both findings. This is comparable with the finding of negative association between alcohol and erectile dysfunction by Kew Kin Chew et al (2009) and Martin Morales et al (2001) who concluded that erectile dysfunction in not an inevitable consequence of aging. The results of Oksuz et al (2005) also supported our study by reporting positive association of advancing age with dissatisfaction, low sexual desire and premature ejaculation. In contrary to our study Gbenga Okulate et al (2003) observed a positive correlation between aging and erectile dysfunction in alcoholics. The contradictory findings also obtained by Carson et al (2006) who reported premature ejaculation is prevalent in younger age alcoholics.

The correlation of sexual dysfunctions with duration of marital life is interesting in the present study. Except overall satisfaction all other sexual dysfunction in alcoholics has negative correlation with duration of marriage. However these findings are statistically not significant. This is comparable with Shiri et al (2004) and MMAS study, both reported marriage has no effect on erectile dysfunction. In our study, all sexual dysfunctions in alcoholics except orgasmic dysfunction are positively but not significantly correlated with duration of alcohol consumption. This is comparable to Rosen et al (2003) and Wetterling et al (1999) who reported that duration of alcohol consumption is positively correlated with erectile dysfunction, low sexual desire and ejaculatory disturbance. Bijil Simon et al (2007) also found no significance correlation between duration of alcohol consumption and sexual dysfunctions. Our finding was contradicted by Cheng et al (2007) who observed negative correlation between the two.

Although the correlation between sexual dysfunctions and nicotine dependence among alcoholics has no significance in our study, we found some positive correlation between all domains of sexual dysfunctions and nicotine dependence. This is comparable to the findings of Bijil Simon et al (2007) who concluded that nicotine dependents among alcoholics are

no more likely to have significant sexual dysfunctions in all domains than alcoholic non smokers.

In our study erectile dysfunction has positive and significant correlation with intercourse dissatisfaction, low sexual desire, orgasmic dysfunction and overall dissatisfaction among alcoholics. This is comparable to the findings by Chen et al (2004), Agarwal (1981), De Klerk et al (2003) and Boer et al (2004). The present study shows premature ejaculation has a significant positive association with erectile dysfunction, intercourse dissatisfaction and overall dissatisfaction which is comparable with Carson et al (2006) who stated premature ejaculation is frequently co-existed with erectile dysfunction.

Based on the findings, it has been found the prevalence of sexual dysfunction in multiple domains is significantly higher in alcohol dependents compared to controls. Most common sexual dysfunction among alcoholics is intercourse dissatisfaction and most common sexual dysfunction in non alcoholics is premature ejaculation. Intercourse dissatisfaction, orgasmic dysfunction, low sexual desire and overall dissatisfaction are significantly higher in alcoholics and there is no difference noted in erectile dysfunction and premature ejaculation. Severity of alcoholism increases dissatisfaction and low sexual desire but

does not affect other domains. Stressful life events increase erectile dysfunction, intercourse dissatisfaction and orgasmic dysfunction but not other domains. Our study findings indicate that Nicotine dependence does not interfere with sexual functioning.

LIMITATIONS OF OUR STUDY

- Our study population was derived from general hospital setting and the number of samples was low. So our findings could not be comparable to general population.
- Measurement of Blood level of alcohol and endocrinological factors related to sexual dysfunctions could provide more relevant data regarding this study which was not possible in our setting.
- Severity of alcohol consumption was not assessed and compared in our study.
- It is impossible to compare the severity of sexual dysfunction as the number of sample is low in our study.

CONCLUSION

Based on the above findings and statistical analysis the following conclusions are made:

- Prevalence of sexual dysfunction is **significantly high** among persons with alcohol dependence comparing with non alcoholics
- Erectile dysfunction is **not significantly** higher for persons with alcohol dependence than controls
- Persons with alcohol dependence and controls do not differ with regard to premature ejaculation. In fact premature ejaculation is the most common sexual dysfunction among controls.
- Duration of alcohol consumption **does not significantly increase** the risk of sexual dysfunction in multiple domains.
- Significant stressful life events in the past one year significantly increase the risk of erectile dysfunction, intercourse dissatisfaction and orgasmic dysfunction but not other domains in alcohol dependence patients.
- Orgasmic dysfunction is the least common sexual dysfunction among alcohol dependents, **but significantly higher** when compared to non alcoholic persons.

- Sexual dysfunction is **not higher** in persons with both alcohol dependence and nicotine dependence comparing with alcohol dependence alone.

FUTURE DIRECTIONS

Future studies should be directed to conduct follow up studies with more number of samples. The studies should include biochemical, hormonal assays for sexual dysfunctions.

BIBLIOGRAPHY

1. James sadock B, Alcott sadock V. Synopsis of psychiatry: alcohol use disorders. tenth edition.Philadelphia: Lippincott Williams & Wikins; 2007

2. Vyas JN, Niraj ahuja. Textbook of postgraduate psychiatry : Substance use disorders .Second edition. New delhi: jaypee brothers ;1999.

3. Michael G Gelder, Nancy C Andreasen, Juan J Lopez, John R Geddes. New Oxford textbook of Psychiatry: Alcohol use disorders. Second edition.Newyork: oxford university press;2009

4. Enrique echeburu ,Ricardo bravo DM ,Javier aizpiri. Comorbidity of alcohol dependence and personality disorders: a comparative study. Alcohol & alcoholism .2007; 42(6) :618–622

5. Kaisla joutsenniemi, tuija martelin, laura kestila , pekka martikainen, sami pirkola, seppo koskinen. Living arrangements, heavy drinking and alcohol dependence. Alcohol & alcoholism .2007; 42(5): 480–491.

6. Wei-yen lim , chee weng fong, jacqelene meow LC, derrick heng, vineta bhalla and suok kai chew . Trends in alcohol consumption in singapore 1992–2004.Alcohol & alcoholism. 2007; 42(4): 354–361.

7. Jean h. kim, sing lee, julie chow, joseph lau, adley tsang et al. prevalence and the factors associated with binge drinking, alcohol abuse,and alcohol dependence: a population-based study of chinese adults inhong kong. Alcohol & alcoholism.2008;43(3): 360–370.

8. Hoffman P L, Tabakoff T. Alcohol dependence: a commentary on mechanisms. Alcohol & alcoholism . 1996; 4: 333-340.

9. Balapal s. Basavarajappa, basalingappa l. Hungund. Role of the endo-cannabinoid system in the development of Tolerance to alcohol .Alcohol & alcoholism. 2005; 40(1) :15–24.

10. Roberta J. Ward, Fr´ed´eric Lallemand , Philippe de Witte. Biochemical and Neurotransmitter Changes Implicated in Alcohol-Induced Brain Damage in Chronic or ‘Binge Drinking’ Alcohol Abuse. Alcohol & Alcoholism. 2009; 44, (2): 128–135.

11. Thomas Hillemacher. Biological Mechanisms in Alcohol Dependence—New Perspectives. Alcohol and Alcoholism 2011; 46(3): 224–230

12. Reddy MV, Chandrashekhar CR. Prevalence of mental and behavioural disorders in india. Indian J of Psychiatry. 1998;40:149-157

13. B.S.Chavan , Priti arun, Rachna Bhargava, Gurvinder pal singh. Prevalence of alcohol and drug dependence in rural and slum population of Chandigarh- A community survey. Indian journal of Psychiatry. 2007;49:44-48.

14. Pratima murthy, N manjunatha, BN Subhot, Prhabaht kumar chand, Vivek benegal.Substance use and addiction research in India. Indian J of psychiatry.2010; 52: 189-199.

15. Kinsey AC. Sexual Behaviour in the Human Male. WB Saunders: Philadelphia, PA, 1948.

16. Laumann E.O, Palik A, Rosen R.C. Sexual dysfunction in the United states: prevalence and predictors. The journal of the American medical association. 1999;281:537-44.

17. Dunn K.M, Croft P.R, Hackett G.I. association of sexual problems with social, psychological , physical problems in men and women: a cross sectional population survey. Journal of epidemiology and community health.1999; 53:144-8.

18. Mercer C.H, Fenton K.A, Johnson A.M.et al. Sexual function problems and help seeking behaviour in Britain: national probability survey. British medical journal. 2003;327:426-7.

19. Martin-Morales A et al. Prevalence and independent risk factors for erectile dysfunction in Spain: results of the Epidemiologia de la Disfuncion Erectil Masculina Study.J Urol 2001; 166: 569–574.

20. Shirai M, Marui E, Hayashi K, Ishii N, AbeT. Prevalence and correlates of erectile in Japan. Int J Clin Pract 1999;(102):36.

21. Marumo K, Nakashima J, Murai M. Agerelated prevalence of erectile dysfunction in Japan: assessment by the International Index of Erectile Function. Int J Urol 2001;8(2):53-59.

22. M Kubin, G Wagner ,AR Fugl-Meyer.Epidemiology of erectile dysfunction. International Journal of Impotence Research .2003; 15: 63–71

23. F Hedon. Anxiety and erectile dysfunction: a global approach to ED enhances results and quality of life. International Journal of Impotence Research .2003; 15(2):16–S19

24. K-K Chen, H-S Chiang, B-P Jiann, JS-N Lin, C-J Wu, J-T Hsieh, C-J Wang. Prevalence of erectile dysfunction and impacts on sexual activity and self-reported intercourse satisfaction in men older than 40 years in Taiwan. International Journal of Impotence Research .2004;16: 249–255

25. P Enzlin, R Mak. Sexual functioning in a population-based study of men aged 40–69 years: the good news. International Journal of Impotence Research .2004; 16: 512–520

26. G Corona, E Mannucci. Psycho-biological correlates of hypoactive sexual desire in patients with erectile dysfunction. International Journal of Impotence Research .2004; 16: 275–281

27. AI El-sakka. Characteristics of erectile dysfunction in Saudi patients. International Journal of Impotence Research .2004; 16: 13–20

28. Chris G. McMahon, Carmita Abdo, Luca Incrocci, Michael Perelman et al.Disorders of Orgasm and Ejaculation in Men. Journal of sexual medicine. 2004;1:1.

29. Naomi M. Gades, Ajay Nehra. Association between Smoking and Erectile Dysfunction: A Population-based Study. American Journal of Epidemiology. 2005;161:346–351

30. A Natali, N Mondaini, G Lombardi, G Del Popolo. Heavy smoking is an important risk factor for erectile dysfunctionin young men. International Journal of Impotence Research .2005;17 :227–230.

31. E Oksuz , S Malhan.The prevalence of male sexual dysfunction and potential risk factors in Turkish men: a Web-based survey. International Journal of Impotence Research .2005; 17: 539–545

32. Cesare Carani, Andrea M. Isidori, Antonio Granata, Eleonora Carosa, Mario Maggi .Multicenter Study on the Prevalence of Sexual Symptoms in Male Hypo- and Hyperthyroid Patients. Journal of Clinical Endocrinology and Metabolism. 2005; 90(12):6472–6479.

33. C Carson, K Gunn**.** Premature ejaculation: definition and prevalence. International Journal of Impotence Research .2006;18: 5–13.

34. JYW Cheng, EML Ng, JSN Ko. Monthly income, standard of living and erectile function in late life. International Journal of Impotence Research 2007; 19: 464–470

35. R Mihalca, M Bocchio, F Pelliccione, F Ciociola, S Necozione. Psychological features in men with erectile dysfunction with or

without preclinical atherosclerosis. International Journal of Impotence Research .2007; 19: 597–601.

36. Pejman cohan ,stanley G Korenman. Erectile dysfunction. The journal of clinical endocrinology & metabolism.2001 ;86(6):84-92.

37. J Buvat .Hyperprolactinemia and sexual function in men: a short review. International Journal of Impotence Research .2003;15: 373–377

38. Irwin Goldstein. The association of ED (erectile dysfunction) with ED (endothelial dysfunction) in the International Journal of Impotence Research: The Journal of Sexual Medicine. International Journal of Impotence Research .2003; 15: 229–230

39. K Esposito, D Giugliano.Obesity, the metabolic syndrome, and sexual dysfunction. International Journal of Impotence Research .2005; 17: 391–398.

40. B Musicki and AL Burnett .Endothelial dysfunction in diabetic erectile dysfunction. International Journal of Impotence Research .2007; 19: 129–138.

41. morley JE, Kaiser FE. Impotence in elderly men.Drugs aging.1992;2:330-334

42. Avasthi, Basu D, Kulhara P, Banergee ST. Psychosexaul dysfunction in Indian male patients : revisited after seven years.Arch sex behav. 1994;23:685-695.

43. Verma KK, Kaithan BK, Singh OP. The frequency of sexual dysfunction in patients attending sex clinic in North India. Arch sex behav.1998;27:309-14.

44. Kuldeep Jain, Gita Radhakrishnan, Pradeep Agrawal .Infertility and psychosexual disorders: Relationship in infertile couples. Indian journal of medical sciences.2000;54 (1):1-7

45. Lemere F, Smith JW. Alcohol-induced sexual impotence. Am J Psychiatry 1973; 130: 212–3.

46. Vijayasenan ME. Alcohol and sex. N Z Med J. 1981 Jan 14;93(675):18-20.

47. Mandell W, Miller C M. Male sexual dysfunction as related to alcohol consumption. A pilot study. Alcoholism : clinical and experimental research. 1983; 7 : 65-69

48. Jensen SB. Sexual function and dysfunction in younger married alcoholics-A comparative study. Acta Psychiatrica Scandinavica. 1984 Jun;69(6):543-9.

49. Mc Carthy B W. Returning to drinking as a result of erectile dysfunction. Alcoholism: treatment quarterly. 1984; I : 33-34.

50. Fahrner EM. Sexual dysfunction in male alcohol addicts: prevalence and treatment. Archives of Sexual Behaviour. 1987 Jun;16(3):247-57

51. Schiavi RC, Stimmel BB, Mandeli J, White D. Chronic alcoholism and male sexual function. American Journal of Psychiatry. 1995 Jul; 152(7) : 1045-51.

52. O'Farrell TJ, Kleinke CL, Cutter HS. Sexual adjustment of male alcoholics: changes from before to after receiving alcoholism counseling with and without marital therapy. Addictive Behaviours. 1998 May-Jun;23(3):419-25.

53. Tillman Wetterling, Clemens Veltrup, Martin Driessen, Ulrich John. Drinking pattern and alcohol related medical disorder. Alcohol and alcoholism . 1999 ; Vol 34 (3) : P 330-336

54. Rosen RC, Goldstein I. Sexual dysfunction. In: Warrell DA,Cox TM, Firth JD, Benz EJ (eds), Oxford Textbook of Medicine,4th edn Oxford University Press: Oxford, 2003.

55. Cho BL, Kim YS, Choi YS, et al. Prevalence and risk factors for erectile dysfunction in primary care: results of a Korean study. International Journal of Impotence Research 2003;15:323–8.

56. Gbenga Okulate, Oladokun Olayinka, A.S Dogunro. Erectile dysfunction: prevalence and relationship to depression, alcohol abuse and panic disorder**.** General Hospital Psychiatry journal. May 2003; 25(3) : P 209-213.

57. Nicolosi A, Moreira ED Jr, Shirai M, Bin Mohd Tambi MI, Glasser DB. Epidemiology of erectile dysfunction in four countries: cross-national study of the prevalence and correlates of erectile dysfunction. Urology. 2003 Jan;61(1):201-6.

58. MR Safarinejad1. Prevalence and risk factors for erectile dysfunction in a population-based study in Iran. International Journal of Impotence Research .2003; 15: 246–252

59. Shaeer KZ**,** Osegbe DN, Siddiqui SH, Razzaque A, Glasser DB, Jaguste V. Prevalence of erectile dysfunction and its correlates among men attending primary care clinics in three countries: Pakistan, Egypt, and Nigeria. Int J Impot Res 2003;15(Suppl 1): S8–14.

60. R Shiri1, J Koskima ki, M Hakama, J Ha¨kkinen, H Huhtala1, TLJ Tammela ,A Auvinen. Effect of life-style factors on incidence of

erectile dysfunction. International Journal of Impotence Research .2004; 16: 389–394

61. Johannes CB et al. Incidence of erectile dysfunction in men 40 to 69 years old: longitudinal results from the Massachusetts Male Ageing Study. J Urol 2000; 163: 460–463.

62. BJ de Boer, ML Bots , AAB Lycklama a Nijeholt , JPC Moors, HM Pieters and ThJM Verheij . Erectile dysfunction in primary care: prevalence and patient characteristics. The ENIGMA study. International Journal of Impotence Research .2004 ; 16: 358–364

63. P Lyngdorf1, L Hemmingsen. Epidemiology of erectile dysfunction and its risk factors: a practice-based study in Denmark. International Journal of Impotence Research .2004; 16: 105–111

64. JYW Cheng, EML Ng, RYL Chen and JSN Ko. Alcohol consumption and erectile dysfunction: meta-analysis of population-based studies. International Journal of Impotence Research . 2007; 19: 343–352

65. Bacon CG, Mittleman MA, Kawachi I, Giovannucci E, Glasser DB, Rimm EB. Sexual function in men older than 50 years of age: results from the health professionals follow-up study. Ann Intern Med 2003; 139: 161–168.

66. Jiang He, Kristi Reynolds.Cigarette Smoking and Erectile Dysfunction among Chinese Men without Clinical Vascular Disease. Am J Epidemiol 2007; 166: 803–809

67. Kew-Kim Chew , Alexandra Bremner , Grad Dip et al. Original research–erectile dysfunction: Alcohol Consumption and Male Erectile Dysfunction: An Unfounded Reputation for Risk? Article first published online: 8 JAN 2009

68. A C K Lee, L M Ho, A W C Yip, S Fan and T H Lam. The effect of alcohol drinking on erectile dysfunction in Chinese men. International Journal of Impotence Research .2010 ;22 : 272-278

69. Bang-Ping Jiann. Erectile Dysfunction Associated with Psychoactive Substances. Chonnam Medical Journal. 44(3): 117-124

70. Noboru Toda, Kazuhide Ayajiki. Pharmacology and cell metabolism : vascular actions of nitric oxide as affected by exposure to alcohol. Alcohol and alcoholism. 2010; pp 347-355.

71. Cicero T J, Meyer E D, Bell R D. Effects of ethanol on the hypothalamic pituitary leutinizing hormone axis and testicular steroidogenesis. Journal of pharmacology and experimental therapeutics. 1979 ; 208: 210-215.

72. Gordon G G , vittek J, Southren A L , Munnangai P, Lieber C S.Effect of chronic alcohol ingestion on the bio synthesis of steroids in rat testicular homogenate in vitro.Endocrinology. 1980; 106 :1880-1885.

73. Chiao Y , Van Thiel D H. Bio chemical mechanisms that contributed to alcohol induced hypogonadism in the males. Alcoholism: clinical and experimental research.1983; 7 : 131-134

74. Synder S, Karacan I. Effects of chronic alcoholism on nocturnal penile tumescence. Psychosomatic medicine . 1981; 43 :423-429.

75. Synder S, Karacan I. Effects of chronic alcoholism on nocturnal penile tumescence. Psychosomatic medicine . 1981; 43 :423-429.

76. Leif C Crowe, William H George. Alcohol and human sexuality: review and integration. Psychological Bulletin. 1989; 105(3) : 374-386.

77. Martin Hasselblatt, ChristiAN Krieg Hartig, Micheal Hufner, Angelos halaris, hannelore Ehrenreich. Persistent disturbance of the HPG axis in abstinent alcohol men. Alcohol and alcoholism . 2003 ; vol 38 (3) : 239-242.

78. Heramani singh ,Sharma S G ,Angelia pasweth.Psychiatric comorbidity among alcohol dependants. Indian J of Psychiatry.2005;47:222-224.

79. Bijil simon Arackal, Vivek Benegal. Prevalence of sexual dysfunction in male subjects with alcohol dependence. Indian Journal of psychiatry. 2007; 49 : 109-112

80. Gurmeeth singh, Dalbir Kaur, Harsharan Kaur. Presumptive stressful life event scale-A new stressful life event scale for use in India. Indian Journal of psychiatry. 1984 ; 26(2) :107-114.

81. Babor TF, Bohn MJ, Kranzler HR: The Alcohol use Disorders Identification Test (AUDIT): validation of a screening instrument for use in medical settings. J Stud Alcohol .1995; 56: 423-432

82. Fagerstrom KO, Schneider NG. Measuring nicotine dependence: a review of the fagerstrom tolerance questionnaire. J behave med. 1989:12;159-182.

83. Rosen RC, Riley A, Wagner G et al. The international index of erectile function: a multi-dimentional scale for the assessment of erectile dysfunction. Urology.1997:49;822-930.

84. Tara Symonds a, Michael A. Perelman b, Stanley Althof c, Franc¸ois Giuliano d. Development and Validation of a Premature Ejaculation Diagnostic Tool. European Urology. 2007 ; 52 : 565–573

ABBREVIATIONS

AUDIT	:	Alcohol Use Disorder Identification Test
CB	:	Cannabinoid
EF	:	Erectile function
ED	:	Erectile Dysfunction
HPFS	:	Health Professional Follow-up Study
IIEF	:	International Index of Erectile Function
IS	:	Intercourse Satisfaction
MMAS	:	Massachusetts Male Aging Study
OF	:	Orgasmic function
OS	:	Overall Satisfaction
PEDT	:	Premature Ejaculation Diagnostic Tool
PE	:	Premature Ejaculation
PSLES	:	Presumptive Stressful Life Event Scale.
SES	:	Socio-Economic Status
X^2	:	Chi - square

STUDY OF SEXUAL DYSFUNCTION IN MALE ALCOHOL DEPENDENCE INPATIENTS

SOCIODEMOGRAPHIC AND CLINICAL DATA

Name: Age:

Address:
Urban/Rural:

Education: Uneducated/ Primary/ High school / Vocational-ITI, Polytech / Higher sec/ UG/ PG/ Arts & science/ Professional/ Self employed / others

Occupation: Total income per month:

Religion:

Marital status: Married / Unmarried / Widowed / Separated

Last sexual Relationship:

Socioeconomic status : Lower / Middle / Upper

Duration of alcohol consumption*:

Average quantity for last one year*:

Any other complaints:

PAST HISTORY

Psychiatric illness: yes / no

Chronic medical illness like HT,DM : Yes / No

Intake of medications known to cause sexual dysfunction: Yes / No

Sexual dysfunction before starting alcohol: Yes / No

Surgical Procedures of GUT, spine : Yes / No

Hepatic dysfunction : Yes / No

FAMILY HISTORY

Psychiatric disorders : Yes / No

MARRITAL HISTORY

Duration : Disharmony : Yes / No

PREMORBID PERSONALITY :

GENERAL EXAMINATION

MENTAL STATUS EXAMINATION

SCORING SYSTEM

SOCIO-ECONOMIC INDICATORS

1.Educational category :

2.Income :

3.Occupational group :

Total score : status category : Major social class :

PRESUMPTIVE STRESSFUL LIFE SCALE SCORE:

ALCOHOL USE DISORDERS IDENTIFICATION TEST [AUDIT]*

1	6
2	7
3	8

4 9
5 10

Total score : Interpretation :

INTERNATIONAL INDEX OF ERECTILE FUNCTION QUESTIONNAIRE [IIEF]

	Erectile function	Intercourse satisfaction	Orgasmic function	Sexual desire	Overall satisfaction
Scoring					
Total					
Interpretation					

PREMATURE EJACULATION DIAGNOSTIC TOOL

1 2 3 4
5

Total score :

Interpretation:

FAGERSTROM TEST FOR NICOTINE DEPENDENCE

1 2 3 4
5 6

Total :

Interpretation :

* not applicable for controls

THE ALCOHOL USE DISORDERS IDENTIFICATION TEST: INTERVIEW VERSION

1. How often do you have a drink containing alcohol?
    (0) Never [Skip to Qs 9-10]
    (1) Monthly or less
    (2) 2 to 4 times a month
    (3) 2 to 3 times a week
    (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you
are drinking?
    (0) 1 or 2
    (1) 3 or 4
    (2) 5 or 6
    (3) 7, 8, or 9
    (4) 10 or more

3. How often do you have six or more drinks on one occasion?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

Skip to Questions 9 and 10 if Total Scorefor Questions 2 and 3 = 0

4. How often during the last year have you found that you were not able to stop
drinking once you had started?
    (0) Never
    (1) Less than monthly
    (2) Monthly
    (3) Weekly
    (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally
expected from you because of drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning
to get yourself going after a heavy drinking session?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse
after drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the nightbefore because you had been drinking?

(0) Never
(1) Less than monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned
about your drinking or suggested you cut down?
(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

INTERNATIONAL INDEX OF ERECTIE FUNCTION (IIEF)

Over the past 4 weeks: Please check one box only

Q1. How often were you able to get an erection during sexual activity?
0 No sexual activity
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q2. When you had erections with sexual stimulation, how often were your
erections hard enough for penetration?
0 No sexual activity
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q3. When you attempted intercourse, how often were you able to penetrate
(enter) your partner?
0 Did not attempt intercourse
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q4. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?

0 Did not attempt intercourse
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q5. During sexual intercourse, how difficult was it tomaintain your erection to completion of intercourse?

0 Did not attempt intercourse
1 Extremely difficult
2 Very difficult
3 Difficult
4 Slightly difficult
5 Not difficult

Q6. How many times have you attempted sexual intercourse?

0 No attempts
1 One to two attempts
2 Three to four attempts
3 Five to six attempts
4 Seven to ten attempts
5 Eleven or more attempts

Q7. When you attempted sexual intercourse, how often was it satisfactory for you?

0 Did not attempt intercourse
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q8. How much have you enjoyed sexual intercourse?

0 No intercourse
1 No enjoyment at all
2 Not very enjoyable

3 Fairly enjoyable
4 Highly enjoyable
5 Very highly enjoyable

Q9. When you had sexual stimulation or intercourse, how often did you ejaculate?
0 No sexual stimulation or intercourse
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q10. When you had sexual stimulation or intercourse, how often did you have the feeling of orgasm or climax?
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q11. How often have you felt sexual desire?
1 Almost never or never
2 A few times (less than half the time)
3 Sometimes (about half the time)
4 Most times (more than half the time)
5 Almost always or always

Q12. How would you rate your level of sexual desire?
1 Very low or none at all
2 Low
3 Moderate
4 High
5 Very high

Q13. How satisfied have you been with your overall sexlife?
1 Very dissatisfied
2 Moderately dissatisfied
3 Equally satisfied & dissatisfied
4 Moderately satisfied

5 Very satisfied

Q14. How satisfied have you been with your sexual relationship with your partner?

1 Very dissatisfied
2 Moderately dissatisfied
3 Equally satisfied & dissatisfied
4 Moderately satisfied
5 Very satisfied

Q15. How do you rate your confidence that you could get and keep an erection?

1 Very low
2 Low
3 Moderate
4 High
5 Very high

Q1-5 & Q15 – Erectile function

Q6-8 – intercourse satisfaction
Q9, 10 – orgasmic function
Q11&12 – sexual desire
Q13& 14 – overall satisfaction.

PREMATURE EJACULATION DIADNOSTIC TOOL (PEDT)

1. How difficult is it for you to delay ejaculation?
   0- Not difficult at all
   1- somewhat difficult
   2- moderately difficult
   3- very difficult
   4- extremely difficult.

2. Do you ejaculate before you want to?
   0- Almost never or never
   1- less than half the time
   2- about half the time
   3- more than half the time
   4- almost always or always

3. Do you ejaculate with very little stimulation?
   0- Almost never or never
   1- less than half the time
   2- about half the time
   3- more than half the time
   4- almost always or always

4. Do you feel frustrated because of ejaculating before you want to?
   0- Not at all
   1- slightly
   2- moderately
   3- very
   4- extremely.

5. How concerned are you that your time to ejaculation leaves your partner sexually unfulfilled?
   0- Not at all
   1- slightly
   2- moderately
   3- very
   4- extremely.

FAGERSTROM TEST FOR NICOTINE DEPENDENCE

1. How soon after you wake up do you smoke your first cigarette?
   3 - Within 5 minutes
   2 - 6-30 minutes
   1 - 31-60 minutes
   0 - After 60 minutes

2. Do you find it difficult to refrain from smoking in places where it is forbidden (e.g. in church, at the library, cinema, etc.)?
   1 - Yes
   0 – No

3. Which cigarette would you hate to give up?
   1 - The first one in the morning
   0 - All the others

4. How many cigarettes/day do you smoke?
    0 - 10 or less
    1 - 11-20
    2 - 21-30
    3 - 31 or more

5. Do you smoke more frequently during the first hours after waking than during the rest of the day?
    1 - Yes
    0 – No

6. Do you smoke if you are so ill you are in bed most of the day?
    1 - Yes
    0 - No

Sr. No. 01104 /E4/3/2012

Govt.Rajaji Hospital,Madurai.20.
Dated: .03.2012

Institutional Review Board / Independent Ethics Committee.
Dr. A. Edwin Joe, M.D (PM), BL.,
Dean, Madurai Medical College & 2521021 (Secy)
Govt Rajaji Hospital, Madurai 625020.
Convenor
grhcthicssecy @gmail.com.

Sub: Establishment-Govt. Rajaji Hospital, aMadurai-20-
Ethics committee-Meeting Agenda-communicated-regarding

The next Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held at 11.00 Am to 1.00Pm on 23.02.2012 at the Dean Chamber, Govt. Rajaji Hospital, Madurai. The following members of the committee have been attended the meeting.

1. Dr.N.Vijayasankaran,M.ch(Uro.) 094-430-58793 0452-2584397	Sr.Consultant Urologist Madurai Kidney Centre, Sivagangai Road,Madurai	Chairman
2. Dr.P.K. Muthu Kumarasamy, M.D., 9443050911	Professor & H.O.D of Medical Oncology(Retired)	Member Secretary
3. Dr.T.Meena,MD 094-437-74875	Professor of Physiology, Madurai Medical College	Member
4. Dr. S. Thamilarasi, M.D (Pharmacol)	Professor of pharmacology	
5.Dr.Moses K.Daniel MD(Gen.Medicine) 098-421-56066	Professor of Medicine Madurai Medical College	Member
6.Dr.M.Gobinath MS(Gen.Surgery) 097-871-50040	Professor of Surgery Madurai Medical College	Member
7.Dr.S. Dilshadh, MD(O&G)	Professor of OP&Gyn Madurai Medical College	Member
8.Dr.S.Vadivel Murugan,, M.D. 097-871-50040	Professor of Medicine Madurai Medical College	Member
9.Shri.M.Sridhar,B.sc,B.L. 099-949-07400	Advocate, 623-B.II.Floor,East II Cross, K.K.Nagar,Madurai.20.	Member
10.Shri.O.B.D.Bharat,B.sc., 094-437-14162	Busmessman Plot No.588, K.K.Nagar,Madurai.20.	Member
11.Shri. S.sivaKumar,M.A(Social) Mphil 093-444-84390	Sociologist, Plot No.51 F.F, K.K Nagar, Madurai.	Member

Following Projects were approved by the committee

Sl. No	Name of P.G.	Course	Name of the Project	Remarks
1.	Sampatkumar. R	PG, D.M (Cardiol)	Patency rates of bare metal coronary stents at 1-year follow-up	Approved
2.	Ramachandran. K	PG, M.S (genl surg)	Oral cancers: a clinical study	Approved
3.	Rajarajan. K	PG, M.S (genl surg)	Prevalence of H. pylor in acid peptic disease.	Approved
4.	Ravisankar. P	PG, M.S (genl surg)	Thyroid cancers: a clinical study	Approved
5.	Senthilkumar. K	PG, M.S (genl surg)	Perforative peritonitis: a clinical study.	Approved
6.	Dinesh Kannan. G	PG, M.S (genl surg)	Factors influencing major amputations in patients with diabetic foot.	Approved
7.	Vasanthi. R	PG, M.D (genl med)	Atherosel in non-alcoholic Fatty Liver, by measuring carotid intima media thickness	Approved
8.	Suraj Narasihan.	PG, M.D (genl med)	Correlation of quantitative HBsAg and HBV DNA levels in chr hepatitis B	Approved
9.	Mythili. M	PG, M.D (physiol)	Comparison of Resting ECG in athletes and non-athletes.	Approved
10.	Nivedita. A.S.A	PG, M.D (Paed)	Buccal midazolam vs. iv diazepam as first line treatment in status epileptics	Approved
11.	Vinodkumar.J	PG, M.D (psych)	Psychiatric morbidity in epileptics.	Approved
12.	Godson . A	PG, M.D (psych)	Sexual dysfunction in alcohol-dependent VS. non-alcohol dependent controls.	Approved
13	Sulthana Dhilras. J	PG, M.S (genl surg)	Antibiotic prophylaxis in prevention of SSI.	Approved
14.	Kathiravan .T	PG, M.S (genl surg)	Obstructive jaundice: a clinical study.	Approved
15.	Dinesh. S	PG, M.Ch (cardiolh)	CABG, on-pump and off-pump procedures. a study of post-operative outcome.	Approved
16.	Muthukumar. J	D.M (Neurology)	Analysis of epidemiological, clinical, investigatory, prognostic profile of cortical venous thrombosis patients in a tertiary care hospital.	Approved
17.	Chandrasekaran. P	D.M (Neurology)	Analysis of non motor manifestations in 50 Parkinson's disease.	Approved
18.	Baba Dhoulath Khan. H.M	M.Ch (Neurosurgery)	Analytical study of prognostic factors and outcome in traumatic brain injury in patients aged 18 to 40 years.	Approved

19.	Sivakumar. K	M.Ch (Neurosurgery)	Analytical study of Occult Spinal Dysraphisms - its varied presentations, management and outcome in south Indian population - in a period of 5 years (A retrospective & prospective study).	Approved
20.	Gunasekaran. R	M.S (Plastic Surgery)	Post Burn Contracture of Hand-analysis of 60 cases	Approved
21.	Selvaraja .K	M.S (Plastic Surgery)	Mandible Fracture and management - analysis of 98 cases.	Approved

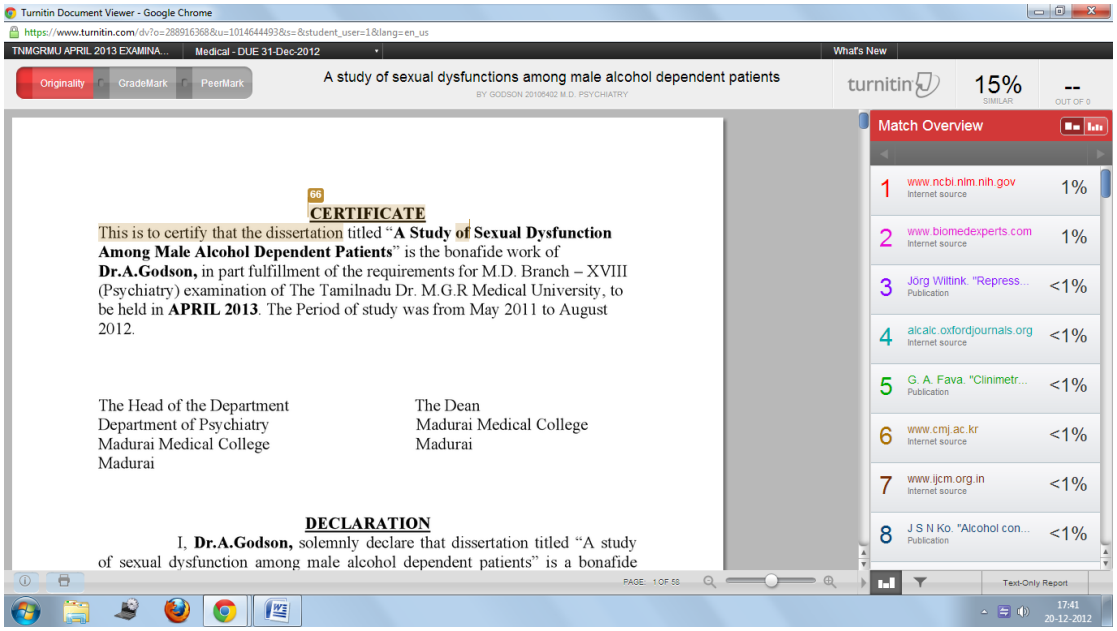
Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution to Government.
2. She/He should inform the institution Ethical Committee in case of any change in study procedure site and investigation or guide.
3. She/He should not deviate for the area of the work for which applied for Ethical clearance.
She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.
4. She/he should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and apply for if any Extension of time is required She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the work or on completion.
8.She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

O/C

13/3/12

To
All the above members and Head of the Departments concerned.
All the Applicants.



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The Head of the Department
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The Dean
Madurai Medical College
Madurai

DECLARATION

I, **Dr.A.Godson,** solemnly declare that dissertation titled "A study of sexual dysfunction among male alcohol dependent patients" is a bonafide

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